PUBLIC HEALTH DEPARTMENT WESTERN AUSTRALIA

ANNUAL REPORT FOR THE YEAR ENDED DECEMBER 31 1983

22501397173

REPORT OF THE
COMMISSIONER OF PUBLIC HEALTH
FOR THE YEAR 1983

JAMES COLUMBA McNULTY,
J.P.,M.B.,B.Ch.,B.A.O.,D.I.H.,D.P.H.,
F.R.A.C.M.A., M.F.O.M., F.A.C.O.M.
Commissioner

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THE HONOURABLE B.J. HODGE
MINISTER FOR HEALTH

Sir,

I have the honour to submit the Report of the Public Health Department for the year 1983.

The Report comprises individual reports from the Directors and Heads of Branches and from certain statutory committees. These provide a comprehensive account of the Department's activities.

Towards the end of 1983 it was announced the Government proposed to abolish the Departments of Public Health, Hospital and Allied Services and Mental Health Services and create a single Department of Health. It seems appropriate, therefore, to comment on the 75 years during which the Public Health Department operated.

The demography of Western Australia has obviously changed dramatically. The population has increased from 280,000 to in excess of 1.3 million. The average life expectancy at age 1 year has altered from 61.0 for males and 63.9 for females to 72.0 and 78.9 respectively. Perhaps the most significant improvement has been in infant mortality which has fallen from 76 to less than 9 deaths per thousand live births, a reduction of 88%. These rates approach the minimum achievable given our present knowledge of prevention. Maternal mortality has shown a similar improvement and the current level is 0.044 per thousand live births. Overall there has been a virtual disappearance of serious life threatening infectious diseases, especially in children. Diphtheria and poliomyelitis have been eradicated by successful immunisation policies.

In the Eastern Goldfields, pulmonary tuberculosis and silicosis (Miners' Phthisis) which disabled and killed many thousands of West Australian gold miners has been conquered. There has not been a new case of tuberculosis in a gold miner for a decade and improved dust control has almost certainly removed any risk of silicosis. Wittenoom, unfortunately, casts a cloud over the mining industry which will persist into the next century.

The effects of new programmes to improve Aboriginal health are becoming apparent. There have been significant, dramatic reductions in infant mortality and in the rate of hospital admissions, particularly from gastro-enteritis. The current infant mortality rate of 22 per 1,000 live births may be unacceptably high but further reduction will require social and environmental change rather than changes in health care.

Every Western Australian now has access to high quality laboratory services, venereal disease control, dental therapy, community nursing and a variety of other services provided on a State-wide basis. Effective enforcement of the provisions of the Health Act is accomplished through the Department's Inspection Services and by Local Authorities. Over 95% of the population drink fluoridated water and one may, with confidence, look to the early disappearance of caries as a health problem.

Occupational health services, radiation safety, data collection of health and vital statistics are equal to and almost certainly better than any in Australia. Despite criticism, control of poisons, pesticides and wastes is good and while the need for continuous improvement is required and introduced when possible even a cursory examination of the controls effected elsewhere in Australia and overseas is reassuring.

Over the years the Department has grown from under 30 staff in 1911 to approximately 2,500 comprising nurses, dentists, doctors, technologists, engineers, librarians, a wide variety of therapists, Aboriginal health assistants, etc. etc. supported by administrative staff. The legislation enacted includes the Health Act, the Hospitals Act, Radioactive Substances Act, Poisons Act, Clean air Act, Fluoridation of Public Water Supplies Act, Noise abatement Act, Human Tissue Transplantation Act, Registration of Health Care professionals and many other Acts developed to promote the public health of the people of Western Australia.

In 1911 persons over the age of 65 comprised only 2% of the population compared with 10% now and a variety of programmes have been developed for the elderly.

Recent changes in the Health Education area hold great promise and the addition of a specialist Epidemiologist has revealed an unrecognised deficiency which has provided new insight into health issues. It would be foolish to attribute the current state of health of Western Australia to the activities of the Public Health Department alone, but equally foolish not to recognise the Department played an important, if not a major role. Only continued provision of comparable services will ensure a maintenance of the high standards achieved.

All those associated with the Department can look back with pride on what has been achieved over the years.

My thanks and the thanks of the people of Western Australia are due to staff at all levels for their continued devoted, often selfless, dedication.

JAMES COLUMBA McNULTY,
J.P.,M.B.,B.Ch.,B.A.O.,D.I.H.,D.P.H.,
F.R.A.C.M.A., M.F.O.M., F.A.C.O.M.

COMMISSIONER OF PUBLIC HEALTH

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Appendix I

LEGISLATION

There was no new or amended health legislation passed by Parliament during 1983.

The Government introduced a Bill to prevent the advertisement and promotion of products used for smoking, to prevent the sale of such products to young people and to repeal the Sale of Tobacco Act, but this was defeated in the Upper House.

REGULATIONS, PROCLAMATIONS, ORDERS

Amendments and additions made during the year were:

HEALTH ACT

DISPOSAL OF LIQUID WASTE REGULATIONS

New regulations were published on 28 January 1983 to regulate the collection, transport and disposal of liquid waste in the cities of Belmont, Canning, Cockburn, Fremantle, Gosnells, Melville, Nedlands, Perth, South Perth, Stirling and Subiaco in the towns of Armadale, Bassendean, Claremont, Cottesloe, East Fremantle, Kwinana and Mosman Park and also in the Shires of Bayswater, Kalamunda, Mundaring, Peppermint Grove, Rockingham, Swan and Wanneroo.

MEAT INSPECTION AND BRANDING AMENDMENT REGULATIONS

The principal regulations were first amended on 27 May 1983.

1. Regulation 5 of the principal regulations was amended by inserting the following:

    1.1 Boddington - Williams Location 15608 Greys Road.
    1.2 Kununurra - Abattoir on King Location 438.
    1.3 Wyndham - North West Beef Industries, Lot 1275, Wyndham Port.

2. Schedule A was amended by including meat brands for Boddington and Wyndham - East Kimberley.

3. Schedule B was amended by inserting the Health Districts of Boddington and Wyndham - East Kimberley.

4. Schedule C was amended by deleting the Shires of Dardanup and Northam, from Scale E, and inserting in Scale F, the Shires of Boddington, Dardanup and Northam and in Scale G the Shire of Wyndham - East Kimberley.

On 25 November 1983 further amendments made were:

1. Schedule A to the regulations was amended by deleting the existing meat brand for Dardanup and replacing it with a new brand.

2. Schedule C to the regulations was amended by deleting from Scale E the Shire of Wagin and inserting it in Scale G.

PIGGERIES AMENDMENT REGULATIONS

The Schedule was amended to incorporate Kwinana (Gazetted 15 July 1983).

PESTICIDE REGULATIONS

On 29 March 1983, the Pesticide Regulations were reprinted and include all amendments made since the last reprint on 29 August 1972.

ORDERS IN COUNCIL

During 1983 the following Orders in Council were published in the Government Gazette.

1. On 9 September 1983 Acquired Immune Deficiency Syndrome (AIDS) was declared to be a dangerous infectious disease by His Excellency the Governor under Section 248 of the Health Act.

2. His Excellency the Governor consented on 4 November 1983 to the acquisition of a block of land at Lot 311 Willman Road, Halls Creek for the purpose of Section 330A and being for residential quarters associated with the Community Health Services Centre at Halls Creek.

OTHER ACTS

CLEAN AIR (DETERMINATION OF AIR IMPURITIES IN GASES DISCHARGED TO THE ATMOSPHERE) REGULATIONS

New regulations were made on 13 May 1983 to regulate the standard of concentration, points of emission and determination of dark smoke in relation to the emission of air impurities in gases discharged to the atmosphere.

CLEAN AIR AMENDMENT REGULATIONS

Amendments to the regulations were gazetted on 27 May 1983 and amended various aspects of the Regulations, including penalties. Also, forms 1 to 5 were deleted and new forms substituted.

Other amendments to the Clean Air Regulations, gazetted on 7 October 1983, replace the existing fee structure, applicable to Scheduled Premises under the Act, with a more comprehensive scale based on throughput per year. Application fees for transfer of licenses and approval to construct or alter Scheduled Premises were also increased.

DENTAL BOARD AMENDMENT RULES

Amendments to the Second Schedule of these rules, gazetted on 11 November 1983 provide for increases in the fees payable by dentists and dental therapists in respect to the annual licence fee.

MEDICAL ACT

PROCLAMATIONS:

His Excellency the Governor, acting with the advice and consent of the Executive Council, cancelled, in the Government Gazette on 27 May 1983:

1. proclamations of various services as auxiliary services in the whole or part of the State.

2. proclamations declaring areas or hospitals to be regions within the meaning of the Act.

On 10 June 1983 the North West Medical Service was proclaimed as an Auxiliary Service.

NOISE ABATEMENT (APPOINTMENT OF INSPECTORS) AMENDMENT REGULATIONS

Various amendments to the regulations were made on 21 October 1983 concerning the prescribed classes of inspectors, approved examinations for appointment of inspectors and duties of inspectors. The Schedule to the regulations was also repealed and a new Schedule substituted. This Schedule contains the form of the certificate of appointment of State, Local Authority and Workplace Inspectors.

NOISE ABATEMENT (HEARING CONSERVATION IN WORKPLACES) REGULATIONS

New regulations, providing for the protection of the hearing of employees in industry, were gazetted on 21 October 1983. These regulations regulate the measurement and evaluation of noise at workplaces, reduction of noise levels, reduction of noise exposure, site identification of noise hazards, suitable hearing protection, hearing tests and medical examinations and management of hearing conservation activities.

NOISE ABATEMENT EXEMPTION ORDERS

Seven Orders were gazetted during 1983 to exempt the following from the provisions of the Act and its regulations during the time specified in each Order.

1. Aboriginal Arts In Perth, (Gazetted 21 October 1983)
2. Festival of Perth 1984 (Gazetted 2 December 1983)
3. Fremantle Week Motorcross (Gazetted 7 October 1983)
4. Port 'n' Country Music Show 1983 (Gazetted 25 November 1983)
5. St. John Baptist Festival 1984 (Gazetted 2 December 1983)
6. Tree Chipping - City of Canning (Gazetted 29 April 1983)
7. Tree Chipping - City of South Perth (Gazetted 29 April 1983)

OCCUPATIONAL THERAPISTS AMENDMENT RULES

Amendments to the First Schedule of these rules gazetted on 11 November 1983 provide for increased fees for registration as an occupational therapist.

POISONS ACT

POISONS AMENDMENT NOTICE

The Schedule to the Notice made under the provisions of the Poisons Act (Section 24(5)) concerning the conditions, restrictions and limitations imposed on the sale of these poisons under the Seventh Schedule was amended on 28 January 1983 to include a list of additional substances of exceptional danger.

POISONS ACT AMENDMENT REGULATIONS

The Appendices to the Poisons Act were amended on 28 January 1983. Various amendments were made to the Appendices 'C' and 'D' to include additional substances of exceptional danger.

POISONS ACT AMENDMENT REGULATIONS (NO 2) 1983

Numerous amendments to the Poisons Act Regulations were gazetted on 23 September 1983. These deal with sale of poisons, period of record retention, Reg 48 restated, prescriptions and security of drugs of addiction.

POISONS ACT PROCLAMATION

Part C of the Schedule to the Proclamation of 4 December 1981 made under the provisions of the Poisons Act, regarding prohibited sale, supply and use of various substances, was amended on 14 January 1983 by deleting the substance "Thalidomide".

POISONS (SCHEDULED SUBSTANCES) AMENDMENT ORDER 1983

The Schedules to the Poisons Act were amended on 14 January 1983. Various amendments were made to the Second, Third, Fourth, Fifth, Sixth and Seventh Schedules.

POISONS (SPECIFIED SUBSTANCES) ORDER 1983

The substance Buprenorphine, its salts and substances containing Buprenorphine or its salts, was declared a specified drug under the Poisons Act, on 23 September 1983.

RADIATION SAFETY ACT

RADIOACTIVE SUBSTANCES REGULATIONS 1958

These regulations were repealed on 21 February 1983 and replaced with the Radiation Safety (General) Regulations 1983.

Appendix II

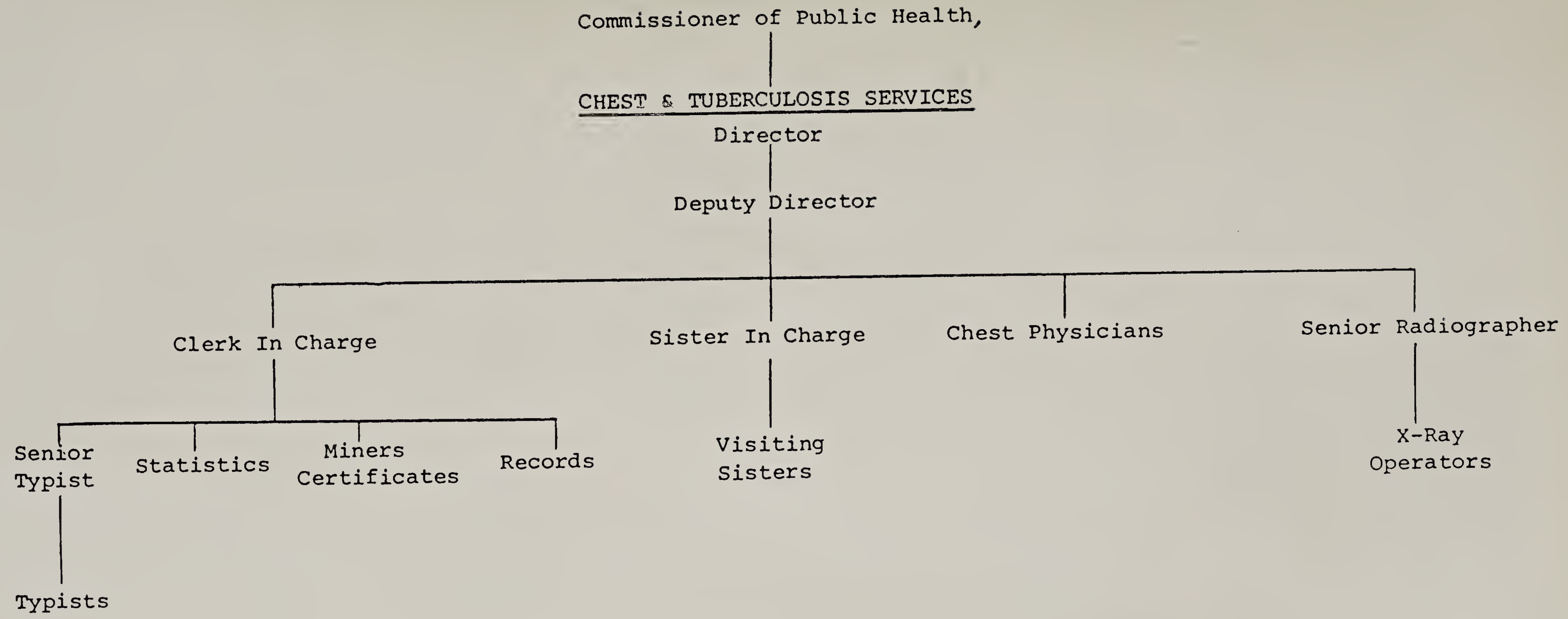
CHEST AND TUBERCULOSIS SERVICES

J.T. Cassidy
M.D., F.R.C.P., F.R.A.C.P.
Director

SENIOR STAFF

Director : Dr. J.T. Cassidy
Deputy Director : Dr. H.S. Chan
Sister in Charge : Sr. A.B. Elliot
Senior Radiographer : Mr. R. Ward
Clerk in Charge : Mr. R. Fryer

CHEST AND TUBERCULOSIS SERVICES - ORGANIZATION CHART



CHEST AND TUBERCULOSIS SERVICES

The attendances at the main Chest Clinics showed no significant change from the 1982 figures.

The figures are as follows:

		1982	1983
Attendances at -	Perth Chest Clinic	10,110	10,200
	Fremantle Chest Clinic	1,941	1,728
	Kalgoorlie Chest Clinic	31	47
	Domiciliary Assessment	59	79
		12,141	12,054
Country Chest X-ray Film Readings			
	- Chest Clinic Requests	669	513
	Other	10,083	8,670
		10,752	9,183
Sisters Home Visits			
	- Supervision of anti-TB Drug Therapy	1,858	1,642
	Other Visits to Patients on TB Register	744	784
	Non TB Chest Patients	1,100	*1,670
		3,702	4,096

*Includes Vietnamese
Not on TB Register of follow-up of old TB.

TUBERCULOSIS

Notifications

The incidence rate for 1983 for new cases (per 100,000) of the population was 10.7 as compared with an incidence rate of 9.2 in 1982. This figure has varied very little over the past few years.

Total notifications during the year numbered 152 and of these 146 were new cases. This shows a rise compared to the figure of 123 for 1982. Of these figures however, 46 were atypical, an increase of 22 on the 1982 figure, 37 of the total number were non-pulmonary.

It is interesting that the notification rate for non-pulmonary tuberculosis has varied little if any over the years. In fact the present figure of 37 is exactly the same as the figure in 1951 whereas in that year the notification for pulmonary TB was 80.4 compared to the present level of 10.7 per 100,000.

Vietnamese and Kampuchean refugees made up 46 of the 152 notifications. Most of these refugees were in fact on treatment when they arrived in Australia.

Of all notifications 45 were bacteriologically positive for M. TB.

There were two transfers in and four reactivations.

The sex ratio for pulmonary disease showed a male preponderance of about 5:4 ratio. There is a slow decrease in this male preponderance ratio, possibly because of more females than males coming to Australia from high density TB areas like the Philippines.

Of the total notifications of 152, 93 were born outside Australia. Of these 46, were South East Asian.

At the end of the year there were 108 cases of active pulmonary tuberculosis on the Register. The change in the extent of the disease since 1973 when compulsory x-rays were phased out is shown below and again no significant fluctuation is noted.

Year	Pleural Effusion	Minimal	Moderate	Advanced
1973	4.6	40.9	41.8	12.7
1974	6.7	34.6	46.2	12.5
1975	0.9	42.2	42.2	14.7
1976	2.4	39.8	38.5	19.3
1977	1.8	42.0	48.2	8.0
1978	0.7	52.5	38.0	8.8
1979	1.6	44.5	39.8	14.1
1980	1.5	57.4	32.3	8.8
1981	2.4	61.6	30.4	5.6
1982	5.6	67.8	24.4	2.2
1983	2.8	66.9	22.9	7.4
Average 1973-1983	2.8	50.0	36.8	10.4

NON-PULMONARY TUBERCULOSIS

Non pulmonary notifications for the year were 37 which included 25 with atypical organisms. Of these 28, involved glands mostly notified from Princess Margaret Hospital.

BACTERIOLOGY

57 of the 109 new pulmonary cases were bacteriologically positive. Of these 36 were positive for M TB.

No case of Bovine tuberculosis was notified during the year.

Drug resistance was not a problem in any case including the migrants.

REACTIVATIONS

There were 4 reactivations during the year. One had been briefly on the Register many years ago but had had no significant treatment. The second had a bilateral thoracoplasty during her years in a sanatorium between 1944 and 1948 but again had no chemotherapy. The third patient had an atypical infection in 1971 but again no significant treatment was documented. The fourth patient was treated in 1948 with streptomycin and PAS but the length of treatment was not known. The organisms in this last patient were however still sensitive to streptomycin.

Again it can be seen here that no patient having received what we would now consider to be adequate treatment has reactivated. There were no reactivations among Aboriginals.

ATYPICAL TUBERCULOSIS

46 of the notifications were for atypical tuberculosis. 20 of these were pulmonary infections and most were caused by M. intracellulare.

DEATHS

There were two definite deaths from tuberculosis during the year. One of them a young man aged 25 died from miliary tuberculosis and TB meningitis. He had been admitted to two hospitals but nonetheless the diagnosis was made at postmortem. On checking records it was found that he had not received BCG vaccination. He was a contact of a known case and the area had been screened at the time he was absent. The second was a 72 year old man who was admitted to hospital on 14/7/83 with a history of a respiratory infection. Results of sputum culture became available at this stage and acid fast bacilli were present. Anti-tuberculous treatment was commenced but nonetheless he died on 18/7/83. Postmortem revealed miliary tuberculosis of lungs, liver, spleen, adrenal, kidneys and bone marrow as well as tuberculous meningitis.

The third death involved a 73 year old man who had been admitted to hospital because of extensive bilateral basal pulmonary involvement. This man had a pharyngeal pouch so it is possible that there may have been an element of aspiration in this. Numerous acid fast bacilli identified as M. intracellulare were isolated. He died very shortly after admission to hospital and it seems doubtful if the death can be unequivocally attributed to an M. intracellulare infection.

Now that miliary tuberculosis and TB meningitis are extremely rare it is inevitable that cases of these particularly in the older age groups will be missed. Both of the above cases that died from TB meningitis had CT scans done of the head but neither of them had a lumbar puncture. It is estimated at this stage that in the United States thirty percent of all cases of miliary tuberculosis are diagnosed at postmortem. Unless one is aware that any pulmonary infection particularly in an old person can be tuberculous in origin cases will be missed.

MIGRANTS AND REFUGEES

1,217 South East Asian migrants arrived during 1983 compared to 1,006 for the previous year. 45 of these refugees were notified on arrival but most of these in fact were on treatment when they entered Australia.

219 East European migrants arrived in Western Australia in 1983 compared to 743 in the previous year.

TREATMENT

83 cases were admitted to the Tuberculosis Ward of the Sir Charles Gairdner Hospital during the year. This figure is almost unchanged from the previous year. The average length of stay in hospital in 1983 was 21 days. Our standard treatment regimen is unchanged and consists of pyrazinamide, rifampicin and isoniazid for two months followed by rifampicin and isoniazid for a further seven months. This regimen with us has a nil breakdown rate.

PREVENTION

Epidemiological tuberculin testing was carried out on 10 to 14 year olds and 15 to 19 year olds. The percentage of positive reactors was 1.91 and 1.55 respectively. B.C.G. vaccination was continued during the year and 19,282 children were vaccinated, nearly all by direct vaccination. There were no significant complications.

Contact examination was carried out on all recently discovered cases. In one infectious case this involved 906 x-rays and 266 skin tests.

MINES MEDICAL SECTION AND OCCUPATIONAL HEALTH

The number of x-ray examinations carried out in respect of the mining industry was 6,716 compared to 3,534 in the previous year.

	New Applicants	Re-examinations	Total
Perth Chest Clinic	1,692	1,326	3,018
Kalgoorlie Chest Clinic	776	566	1,342
Mobile Unit	-	2,356	2,356
	2,468	4,248	6,716

The Pneumoconiosis Medical Board has been reconstituted under the Chairmanship of Dr. F. Heyworth of Occupational Health. This Board is now run by the Department of Occupational Health at 57 Murray Street, Perth. During the year the Pneumoconiosis Medical Board held 26 sessions and examined in all a total of 158 patients.

RESPIRATORY DISEASES PROGRAMME

The visiting Asthma Nurse and one of our sisters in the respiratory diseases section carried out the following visits:

Visits - initial	143	
- follow-up	785	
Group discussions & lectures	15	
Camps	2	
Country trips	5	(10 centres)
Hospital Team Meetings	123	

Referrals to the Asthma Nurse came from the following sources:

Asthma Foundation	27
General Practitioners	11
Specialist Physicians	89
Community & Child Health Sisters	4
Self-referral	5
Public Hospitals	4

In this programme we also have the services of a physiotherapist who attends for two sessions per week.

In 1983, 529 patients received some form of physiotherapy treatment.

We continue to run Stop Smoking Clinics for our patients. These are quite successful as many of our patients are strongly motivated to stop smoking by having some chest problem. These programmes are run on a voluntary basis by staff here, outside government hours.

TABLE 1

TUBERCULOSIS - MAIN STATISTICAL FIGURES

Year	Mean Population 1,000s	Notification (includes Transfers-in)				No. on Register (Pulm.) at 31st Dec	No. on Register per 100,000 (Pulm.)	Number Receiving TB Allowance at 31st Dec	Deaths			Death Rate per 100,000	
		Pulm. (incl. Pleural effus.)	Non-Pulm.	Total	Pulm. per 100,000				Pulm.	Non-Pulm	Total	Pulm.	All Forms
1950	558	586	18	604	104.8	2,100	376	515	125	3	128	22.4	22.9
1951	580	467	37	504	80.4	2,402	413	474	76	6	82	13.1	14.1
1952	601	508	49	557	84.5	2,574	428	396	75	7	82	12.5	13.6
1953	621	378	34	412	60.6	2,762	445	361	43	3	46	6.9	7.4
1954	640	348	34	382	54.3	2,769	432	326	57	4	61	8.9	9.5
1955	659	413	39	452	62.7	2,965	450	330	31	2	33	4.7	5.0
1956	677	424	44	468	62.6	2,900	428	264	43	3	46	6.3	6.8
1957	692	332	32	364	47.9	2,786	403	198	36	1	37	5.2	5.3
1958	706	355	24	379	50.3	2,726	386	213	22	4	26	3.1	3.4
1959	726	320	34	354	44.1	2,684	369	182	24	-	24	3.3	3.3
1960	731	296	34	330	40.5	2,388	327	148	29	1	30	4.0	4.1
1961	737	209	41	250	28.4	1,349	183	89	18	1	19	2.4	2.6
1962	755	243	25	268	32.2	1,333	177	90	24	4	28	3.2	3.7
1963	773	216	28	244	27.9	1,218	158	92	13	-	13	1.7	1.7
1964	790	176	32	208	22.3	1,221	154	88	20	-	20	2.5	2.5
1965	806	153	25	178	19.0	919	114	65	12	-	12	1.5	1.5
1966	836	134	36	170	16.0	840	100	64	16	-	16	1.9	1.9
1967	877	137	34	171	15.6	814	93	54	9	-	9	1.0	1.0
1968	910	145	37	182	15.9	680	75	44	8	1	9	0.9	1.0
1969	947	133	27	160	14.0	659	70	43	8	-	8	0.8	0.8
1970	983	113	35	148	11.5	653	67	32	10	-	10	1.0	1.0
1971	1,029	113	30	143	11.0	625	61	27	17	2	19	1.6	1.8
1972	1,053	125	30	155	11.9	569	54	40	8	-	8	0.8	0.8
1973	1,068	110	36	146	10.3	522	49	15	11	-	11	1.0	1.0
1974	1,090	104	36	140	9.5	480	44	17	8	1	9	0.7	0.8
1975	1,127	102	36	138	9.1	460	41	29	10	2	12	0.9	1.1
1976	1,145	83	27	110	7.3	437	38	13	4	-	4	0.4	0.4
1977	1,183	112	43	155	9.5	424	36	13	7	1	8	0.6	0.7
1978	1,222	137	28	165	11.2	442	36	24	8	-	8	0.7	0.7
1979	1,232	128	51	179	10.4	453	37	14	8	-	8	0.6	0.6
1980	1,265	136	31	167	10.7	483	38	16	5	-	5	0.4	0.4
1981	1,299	138	22	160	10.6	427	33	13	6	-	6	0.5	0.5
1982	1,342	101	35	136	7.5	366	27	4	2	-	2	0.15	0.15
1983	1,369	115	37	152	8.4	329	24	2	3	-	3	0.2	0.2

TABLE 2

CASES OF TUBERCULOSIS NOTIFIED AND NUMBER BACTERIOLOGICALLY PROVEN 1968 - 1983

(Excludes Inter-State Transfers In, Reactivations and Cases Caused by Atypical Mycobacteria)

Year	Pulmonary	No +ve	Non-Pulmonary	No +ve	Total	Total +ve
1968	104	74	25	12	129	86
1969	90	63	17	6	107	69
1970	75	52	25	10	100	62
1971	89	68	21	9	110	77
1972	100	72	17	8	117	80
1973	92	60	20	15	112	75
1974	80	61	26	17	106	78
1975	77	57	26	16	103	73
1976	64	46	21	11	85	57
1977	76	45	32	9	108	54
1978	104	60	20	10	124	70
1979	109	64	34	12	143	76
1980	113	49	19	7	132	56
1981	105	40	11	8	116	48
1982	79	30	20	7	99	37
1983	109	36	12	6	121	42

TABLE 3

PULMONARY TUBERCULOSIS

Year	Population In 1,000s	Notifications Received	Incidence Rate per 100,000 Population	Deaths Registered	Mortality Rate per 100,000 Population
1911	287	259	90.2	190	66.2
1912	301	429	142.5	220	73.1
1913	313	424	135.5	206	65.8
1914	323	353	109.3	229	70.9
1915	321	336	104.7	233	72.6
1916	313	511	163.5	225	71.9
1917	306	464	151.6	217	70.9
1918	308	432	140.5	245	79.5
1919	320	467	145.9	289	91.6
1920	330	442	139.9	259	78.4
1921	334	424	126.9	277	82.9
1922	341	387	113.8	256	75.1
1923	351	361	102.8	216	61.5
1924	363	381	104.6	228	62.8
1925	373	403	108.4	259	69.4
1926	381	415	108.2	252	66.1
1927	392	409	104.3	231	56.4
1928	408	395	96.8	282	69.1
1929	421	400	95.0	245	53.4
1930	429	569	132.6	218	50.8
1931	432	372	86.1	223	51.6
1932	435	339	77.9	203	46.7
1933	439	295	67.2	207	47.2
1934	442	287	64.9	218	49.3
1935	447	270	60.4	210	47.0
1936	452	338	74.8	193	42.7
1937	457	239	53.0	172	37.6
1938	464	247	53.2	177	38.1
1939	470	202	43.0	179	38.1
1940	473	231	48.8	181	38.3
1941	474	154	32.5	185	39.0
1942	477	113	23.7	175	36.7
1943	477	273	57.3	144	30.2
1944	481	219	45.4	134	27.9
1945	488	271	55.5	149	30.5
1946	493	343	69.6	163	33.1
1947	502	372	74.0	128	25.4
1948	515	325	63.1	157	30.5
1949	533	499	93.6	123	23.1
1950	558	586	104.8	129	23.1
DEATH CLASSIFICATIONS ACCORDING TO 6TH (1948) INTERNATIONAL LIST					
1950	558	586	104.8	125	22.4
1951	580	467	80.4	76	13.1
1952	601	508	84.5	75	12.5
1953	621	378	60.6	43	6.9
1954	640	348	54.3	57	8.9
1955	659	413	62.7	31	4.7
1956	677	424	62.6	43	6.3
1957	692	332	47.9	36	5.2
1958	706	355	50.3	22	3.1
1959	726	320	44.1	24	3.3
1960	731	296	40.5	29	4.0
1961	737	209	28.4	18	2.4
1962	755	243	32.2	24	3.2
1963	773	216	27.9	13	1.7
1964	790	176	22.3	20	2.5
1965	806	153	19.0	12	1.5
1966	836	134	16.0	16	1.9
1967	877	137	15.6	9	1.0
1968	910	145	15.9	8	0.9
1969	947	133	14.0	8	0.8
1970	983	113	11.5	10	1.0
1971	1,029	113	11.0	17	1.6
1972	1,053	125	11.9	8	0.8
1973	1,068	110	10.3	11	1.0
1974	1,090	104	9.5	8	0.7
1975	1,127	102	9.1	10	0.9
1976	1,145	83	7.3	4	0.4
1977	1,183	112	9.5	7	0.6
1978	1,222	137	11.2	8	0.7
1979	1,232	128	10.4	8	0.6
1980	1,265	136	10.7	5	0.4
1981	1,299	138	10.6	6	0.5
1982	1,342	101	7.5	2	0.15
1983	1,369	115	8.4	3	.2

TABLE 4

ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE*

Year	Parenchymal Disease						Pleural Effusion		Total
	Minimal		Moderately Advanced		Advanced				
1952	122	24.0%	275	54.1%	101	19.9%	10	2.0%	508
1953	122	30.4	210	52.2	65	16.2	5	1.2	402
1954	96	27.6	178	51.1	74	21.3	-	-	348
1955	111	26.9	225	54.5	64	15.5	13	3.1	413
1956	127	38.0	217	51.1	72	17.0	8	1.9	424
1957	102	30.7	163	49.1	61	18.4	6	1.8	332
1958	91	25.6	187	52.7	72	20.3	5	1.4	355
1959	103	32.2	151	47.2	55	17.2	11	3.4	320
1960	89	30.1	144	48.6	49	16.6	14	4.7	296
1961	90	43.1	73	34.9	34	16.3	12	5.7	209
1962	117	48.1	84	34.6	36	14.8	6	2.5	243
1963	99	45.8	89	41.2	26	12.0	2	1.0	216
1964	71	40.3	81	46.0	23	13.1	1	0.6	176
1965	75	49.0	60	39.2	17	11.1	1	0.7	153
1966	59	44.0	54	40.3	18	13.4	3	2.2	134
1967	56	40.9	59	43.1	20	14.6	2	1.4	137
1968	71	48.9	59	40.7	11	7.6	4	2.8	145
1969	57	42.9	62	46.6	13	9.8	1	0.7	133
1970	51	45.1	47	41.6	10	8.9	5	4.4	113
1971	42	37.2	52	46.0	17	15.0	2	1.8	113
1972	51	40.8	50	40.0	20	16.0	4	3.2	125
1973	45	40.9	46	41.8	14	12.7	5	4.6	110
1974	36	34.6	48	46.2	13	12.5	7	6.7	104
1975	43	42.2	43	42.2	15	14.7	1	0.9	102
1976	33	39.8	32	38.5	16	19.3	2	2.4	83
1977	47	42.0	54	48.2	9	8.0	2	1.8	112
1978	72	52.5	52	38.0	12	8.8	1	0.7	137
1979	57	44.5	51	39.8	18	14.1	2	1.6	128
1980	78	57.4	44	32.3	12	8.8	2	1.5	136
1981	82	59.4	45	32.6	8	5.8	3	2.2	138
1982	64	63.4	26	25.8	6	5.9	5	4.9	101
1983	77	67.0	27	23.5	8	6.9	3	2.6	115

*Classfied according to Diagnostic Standards N.T.A.

Table 5

ANALYSIS OF REGISTER AS AT 31ST DECEMBER 1983

A. Pulmonary Tuberculosis
(excluding Pleural Effusions)

Activity	Number on Register According to Original Extend of Lesions			Total
	Minimal	Moderate	Advanced	
Active	78	24	6	108
Inactive:				
0 - 1 years	53	17	4	74
1 - 2 years	49	24	5	78
2 - 3 years	13	11	5	29
3 - 4 years	5	4	-	9
4 - 5 years	5	3	1	9
5 + years	4	10	1	15
TOTAL	207	93	22	322

B. Pleural Effusion 7

C. Non-Pulmonary Tuberculosis 67

Total All Forms 396

TABLE 6

TUBERCULOSIS NOTIFICATIONS FOR YEAR ENDED 31ST DECEMBER 1983

SHOWING AGE, SEX, FORM AND STAGE OF DISEASE

Age Group	Males					Females					Persons					Total
	Pulmonary			Non Pulm	Pleur Effus	Pulmonary			Non Pulm	Pleur Effus	Pulmonary			Non Pulm	Pleur Effus	
	Min	Mod Adv	Adv			Min	Mod Adv	Adv			Min	Mod Adv	Adv			
0-4				6					16					22		22
5-9				1										1		1
10-14	2										2					2
15-19	2					1			1		3			1		4
20-24	5	1	1			4			1		9	1	1	1		12
25-29	8	3		1		7	1		1		15	4		2		21
30-34	6	1				4			2		10	1		2		13
35-39	3	1				3	1		1		6	2		1		9
40-44	1	1				1		1	1		2	1	1	1		5
45-49	5		1		1		1				5	1	1		1	8
50-54	2	3							1		2	3		1		6
55-59	2					2	2		1		4	2		1		7
60-64	5	1	1			4			1		9	1	1	1		12
65-69	1	3			1	1			2		2	3		2	1	8
70-74	3	1				1	1	1			4	2	1			7
75 and over	5	3	3	1			2			1	5	5	3	1	1	15
TOTAL	50	18	6	9	2	28	8	2	28	1	78	26	8	37	3	152

TABLE 7

SITE AND TYPE OF DISEASE (excludes transfers-in)

Pulmonary				Extrapulmonary			
Diagnosis		% of		Diagnosis		% of	
		Pulmonary Cases	All Cases			Extra-Pulmonary Cases	All Cases
Primary				Genito-urinary	1	2.7	0.7
Pleural effusion	3	2.6	2.0	Lymph glands	28	75.7	18.6
Post-Primary				Meninges	4	10.8	2.7
1. Minimal	76	67.3	50.7	Skin	3	8.1	2.0
2. Mod. Adv.	26	23.0	17.3	Internal Organs	1	2.7	0.7
3. Advanced	8	7.1	5.3				
TOTAL	113	100	75.3	TOTAL	37	100	24.7

TABLE 8

BACTERIOLOGICALLY PROVEN TUBERCULOSIS CASES NOTIFIED 1972 - 1983

(EXCLUDES INTERSTATE TRANSFERS-IN AND DISEASE CAUSED BY ATYPICAL MYCOBACTERIA)

PULMONARY	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	TOTAL
Primary	1		1	2			1	1					6
Pleural Effusion	1	3	4	1	1		1	1		1	4	3	20
POST PRIMARY													
Min.	28	20	15	18	17	20	21	17	18	17	16	20	227
Mod.	36	30	34	30	19	25	29	30	22	25	12	11	303
Adv.	11	13	11	12	11	7	10	16	10	2	1	2	106
	77	66	65	63	48	52	62	65	50	45	33	36	662
EXTRA PULMONARY													
Genito-Urinary	7	10	13	10	7	6	2	6	5	3	1	2	72
Lymph Glands		2	1	3	2	2	3	1	1	4	3	2	24
Bone & Joint	1	3	2	3		2	3*	3	1	3	1		22
Menginges					2							4	6
Generalised							1						1
Abdominal								2			1		3
Chest Wall	1												1
Empyema			1	1									2
Mastoiditis			1										1
Ear							1	1	1	1			4
Throat											1		1
Neck												1	1
	9	15	18	17	11	10	10	13	8	11	7	9	138
TOTAL	86	81	83	80	59	62	72	78	58	56	40	45	800

* Excludes 1 Sternal Cold Abscess

TABLE 9

REACTIVATIONS

Previous Treatment	Number of Reactivations											
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
(1) No chemotherapy	4	3	3	4	3	1	2	1	3	6	2	3
(2) Inadequate Chemotherapy												
Without Surgery	3	4	3	7	1	5	4		3	8	6	1
With Surgery			1	1			1	1	2			
(3) Apparently Adequate Chemotherapy	1		1	1		2	3*	6				
TOTAL	8	7	8	13	4	8	10*	8	8	14	8	4

* Includes 1 with atypical tuberculosis due to M. Kansasii

TABLE 10

REACTIVATION RATES

Year	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
No. of reactivations	7	8	13	4	8	10	8	8	14	8	4
As % of total cases	4.8	5.7	9.4	3.7	5.2	6.1	4.5	4.8	8.7	5.9	2.6
Per 100,000 population	0.7	0.7	1.2	0.4	0.7	0.8	0.6	0.6	1.1	0.6	0.3

TABLE 11

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1974 - 1983: MALES

Country of Birth	Pop. at June 30 1981 Thousands (Census)	Incidence per Thousand Persons										Total Notific-ations 1974-83
		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	
U.K. & Rep. of Ireland	94.8	0.29	0.12	0.13	0.26	0.19	0.06	0.13	0.09	0.07	0.08	116
Germany	3.9	-	0.28	-	0.56	-	0.27	-	-	-	0.25	7
Greece	2.3	0.74	-	-	0.74	-	0.42	-	-	-	-	8
Italy	16.2	0.41	0.12	-	0.35	0.12	0.12	0.18	0.12	0.06	0.12	25
Netherlands	6.1	0.16	0.16	-	0.16	-	0.17	0.17	-	0.16	0.16	6
Poland	2.8	-	0.36	-	-	0.40	-	-	0.40	0.36	-	5
Yugoslavia	6.2	1.29	0.81	-	0.32	0.33	0.83	0.33	0.33	0.16	0.32	22
Other European	8.7	0.23	0.23	0.12	0.23	0.75	0.25	0.25	0.12	0.23	0.46	30
Other Birthplaces	39.6	0.55	0.92	0.76	0.59	1.21	1.45	1.45	1.60	0.86	0.93	304
Total Non-Aust. born	180.6	0.37	0.29	0.20	0.33	0.38	0.36	0.38	0.38	0.28	0.30	523
Australian born	462.5	0.10	0.13	0.09	0.15	0.10	0.15	0.10	0.09	0.05	0.06	422

TABLE 12

WESTERN AUSTRALIA: TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH 1974 - 1983 FEMALES

Country of Birth	Pop. at June 30 1981 Thousands (Census)	Incidence per Thousand Persons										Total Notifications 1974-83
		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	
U.K. & Rep. of Ireland	91.3	0.12	0.12	0.17	0.07	0.06	0.08	0.07	0.05	0.09	0.06	70
Germany	4.2	-	0.86	-	-	-	-	0.27	-	-	-	4
Greece	2.0	0.43	0.87	0.43	-	0.48	0.48	0.95	0.47	-	0.5	11
Italy	13.1	-	-	0.07	0.07	-	0.08	-	-	0.08	-	11
Netherlands	5.2	0.20	-	0.20	-	0.20	-	0.20	-	-	-	3
Poland	2.2	0.50	-	0.50	1.00	-	-	0.53	0.53	0.91	-	9
Yugoslavia	4.8	0.26	0.51	0.51	0.51	0.45	-	0.68	0.23	-	0.21	15
Other European	7.1	-	0.71	0.34	0.34	0.31	-	0.16	0.16	0.42	0.14	15
Other Birthplaces	37.9	0.41	0.47	0.41	0.62	0.96	0.81	0.81	1.23	0.55	0.76	185
Total Non-Aust. born	167.8	0.16	0.20	0.22	0.18	0.24	0.20	0.24	0.27	0.21	0.23	323
Australian born	462.7	0.07	0.06	0.04	0.07	0.06	0.07	0.06	0.05	0.06	0.06	245

TABLE 13

MYCOBACTERIAL DISEASE OF LYMPH NODES IN CHILDREN

(0 - 14 YEARS OF AGE)

Year	M. kansasii Identified	M. scroful-aceum Identified	M. intra-cellulare Identified	M. gordonae Identified	M. TB (Human) Identified	Cultures Negative	Total Cases
1971	-	-	3	-	-	3	6
1972	-	3	7	-	-	5	15
1973	-	6	8	-	-	1	15
1974	-	2	5	-	-	5	12
1975	-	-	5	-	-	3	8
1976	-	-	2	-	1	2	5
1977	-	1	6	-	-	9	16
1978	-	-	6	-	-	2	8
1979	-	6	9	-	-	15	30
1980	-	-	6	-	-	6	12
1981	-	-	5	-	-	2	7
1982	-	-	7	1	1	5	14
1983	1	2	5	-	1	14	23
TOTAL NUMBER OF CHILDREN 1971-1983	1	20	74	1	3	72	171

TABLE 14

PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS

(INCLUDING REACTIVATIONS)

Year	M. Gordonae		M. Kansasii		M. Scrofulaceum			M. Intracellulare				Rapid Growers	
	Pulm	Other	Pulm	Other	Pulm	Lymph Nodes	Total	Pulm	Lymph Nodes	Other	Total	Pulm	Lymph Nodes
1971	-	-	-	-	1	-	1	5	3	-	8	-	-
1972	-	-	2	-	1	3	4	12	7	1	20	1	-
1973	-	-	-	1	-	6	6	8	8	-	16	-	1
1974	-	-	2	-	-	2	2	9	5	-	14	-	-
1975	-	-	2	-	-	1	1	8	6	1	15	-	-
1976	-	-	-	3	-	-	-	10	2	-	12	-	-
1977	-	-	2	-	1	2	3	17	6	2	25	1	-
1978	-	-	1	-	-	-	-	13	6	-	19	-	-
1979	-	-	-	1	-	6	6	10	9	-	19	-	-
1980	-	-	2	2	1	-	1	11	6	1	18	-	-
1981	-	-	3	1	-	-	-	18	6	-	24	-	-
1982	-	-	-	2	1	-	1	11	8	3	22	-	-
1983	2	-	1	1	-	2	2	18	18	4	40	-	-
1971-1983	2	-	15	11	5	22	27	150	90	12	252	2	1

Appendix III

COMMUNITY AND CHILD HEALTH SERVICES

C.F. Quadros,
M.B., B.Ch., B.A.O., D.P.H.
Director

SENIOR STAFF

Director : Dr. J.T. Cassidy (acting)
Deputy Director: Dr. D.G. Hicks (study leave)
Senior Medical Officer, Child Health: Dr. B.J. Robson
Senior Medical Officer, Community Health: Dr. J.S. Gill (acting)
Senior Medical Officer, School Health: Dr. M.J. Gibson
Senior Paediatrician, Child Development Centre : Dr. T.S. Parry
Consultant Paediatrician : Dr. T.R. Henderson
Senior Medical Officer, Epidemiology & Special Services : Dr. R. Allen
Medical Officer, Youth Health Services : Dr. S.I. Robertson
Nursing Supervisor, Child Health : Sr. N. Chidlow
Nursing Supervisor, Community Health: Sr. E.D. Panter
Nursing Supervisor, School Health: Sr. L.D. Keddie
Assistant Administrative Officer: Mr. R.W. Fryer (acting)

COMMUNITY AND CHILD HEALTH SERVICES - ORGANIZATION CHART

- Commissioner of Public Health
  - Assistant Commissioner of Public Health
    - Director of Community and Child Health Services
      - Deputy Director of Community and Child Health Services
        - Child Health
        - Child Development Centre
        - Youth Health
        - Community Health (Includes Aboriginal Health)
        - Immunisation

COMMUNITY AND CHILD HEALTH SERVICES

ADMINISTRATION

1. Structure

There were no major changes in the structure of the branch during 1983. Plans for the regionalisation of the Pilbara and central regions are in hand for 1984.

Southern Cross and Lake Varley which were previously in the Goldfields region were transferred to the southwest region on July 1, 1983.

2. Staff

In June Dr. C.F. Quadros was appointed Assistant Commissioner of Public Health. Dr. J.T. Cassidy was appointed Acting Director thereafter.

Dr. J. Williams retired in July 1983 after ably serving the Department in numerous roles for 15 years, most recently as the Department's medical co-ordinator of the Western Australian Trachoma and Eye Health Programme.

3. Staff Education and Training

3.1 Medical Officers

A medical officers' conference was held in June. Information updates on various clinic topics were presented including training sessions in audiology and use of the typanometer.

3.2 Nurses

Nurses participated in:

(a) Orientation programmes;

(b) second monthly meetings;

(c) Quarterly meetings of all Community and Child Health Services in the metropolitan area;

(d) Annual nurses' conference;

(e) Regional workshops.

3.3 Health Workers

All aboriginal health workers continued to receive on the job training. A health workers' conference for metropolitan and southwest health workers was held in Perth in July and a similar one for central and goldfields regions health workers was held in Geraldton.

4. Finance

Funds provided from consolidated revenue were restricted to the cost escalation of 8% on goods, services and structural materials.

5. Vehicle Replacements

No additional vehicles became available this year. Twenty vehicles were replaced.

6. Buildings

Child Health Centres

New centres were opened at -

i) Millers Well, Karratha. A large Child Health Centre including two interview rooms was opened in September. This spacious and well appointed building was sponsored by the Roebourne Shire Council and forms part of a child care, youth and recreation complex.

ii) Parkwood. An excellent new facility to replace the mobile van was completed in December, 1983. This attractive, well planned and generously furnished building has been eagerly awaited by parents in the fast growing southern suburban area. Our congratulations go to the City of Canning in providing this much needed Child Health Centre.

Metropolitan Area

i) Midland. The Child Health Services team moved into part of a government offices complex in Great Eastern Highway, Midland. This provides accommodation for a medical officer, 8 school health nurses, an occupational therapist and a speech therapist.

ii) Armadale. The staff moved from their present office at 66 Prospect Road to more spacious accommodation at 12 Prospect Road.

South West

i) Albany - moved into a larger office in Albany Highway, Albany. There is sufficient space for a doctor, 2 nurses, 4 health workers and a receptionist. This provides sufficient accommodation and staffing to provide an adequate service in Albany and adjacent areas.

ii) Collie - moved from premises in the hospital grounds to a private rental office and clinic closer to the town centre.

iii) Kellerberrin - a three bedroom house has been rented for staff accommodation.

iv) Southern Cross - a house for staff accommodation has been rented.

Central Region

i) Wiluna - the office, which had undergone extensive renovations in 1982, was destroyed by fire in May. After working from the staff residence for several weeks, a temporary office was opened in rented premises pending the construction of the new office. However, this office was also destroyed by fire in December, on this occasion because of an electrical fault. On the second occasion, as staff were nearby some of the contents were able to be retrieved. A new transportable office is under construction and is due on site in March, 1984.

ii) Cue - premises have been rented from the Shire for use as a part-time office.

iii) Mt. Magnet - New premises for the Mt. Magnet office in the remodelled nursing post were ready for occupation in December.

iv) Carnarvon - Negotiations with the Carnarvon Shire Council resulted in a new two bedroom flat being made available for the child health sister.

Pilbara Region

Three new clinics were established at the 12 Mile Port Hedland, Nullagine and Roebourne. These are all transportable buildings from the Dampier Hospital which became available after the opening of the new hospital at Karratha.

At Newman a duplex was constructed for staff accommodation.

CHILD HEALTH SECTION

Dr. B. Robson reports -

In 1983 the Child Health Section has experienced another extremely busy year. It aims to provide preventive health programmes, health promotion and parent education and support to all children and their families from birth to preschool entry at 5 years.

Table 1 shows the number of births in Western Australia each year since 1978. Prior to 1981 the number of births had remained relatively constant at just over 20,000 per annum. The increase to almost 23,000 in 1981 was unexpected and has persisted. This approximate 10% increase in births has not been matched by a corresponding increase in staff, and has resulted in increased staff workloads.

TABLE 1

NUMBER OF BIRTHS IN WESTERN AUSTRALIA, 1978 - 1983

Year	Number of Live Births
1978	20,566
1979	20,517
1980	20,624
1981	22,041
1982	22,184
1983	22,856

Child Health Centres

Table 2 shows the work performed by staff at child health centres for the last 3 years. Although the total number of attendances was steady, there has been an increase of 5.4% in individual attendances. This increase is a continuing trend with a 24% increase in individual attendances since 1978, and an 8% increase in total attendances. The number of child health nurses working at service level has not increased and consequently every staff member has carried a heavy workload, some unacceptably so. It has previously been recommended that this type of community service can only effectively be undertaken with a caseload of 370 individual children to each child health nurse. The 1983 figures show that on average the number of individuals attending is 537 children per staff member. There are 43 centres with caseloads above 600 of which 14 have over 700, 5 over 800, 2 over 900 and 1 over 1,000.

This situation is unfortunately beginning to reflect in the personal ill-health of staff, prolonged waiting time for parents and a consequent decline in high quality service to the clients.

This is compounded by the great difficulty in attracting Child Health Sisters to fill vacancies in remote areas.

TABLE 2

CHILD HEALTH CENTRE STATISTICS 1980-83

	1981	1982	1983
Birth notifications received at Child Health Centres	21,440	21,516	22,578
Live Births - Midwives System	22,041	22,184	22,856
Gross attendances	305,213	311,592	311,358
Individual attendances: (a)			
0-1 year	24,745	25,756	26,536
1-2 years	14,945	16,032	16,544
2-5 years	17,479	19,671	21,893
Total	57,169	61,459	64,973
Home visits	36,103	36,573	36,453
Telephone consultations	104,560	115,879	131,686
Hospital Visits	22,077	22,268	23,987
Stycar Screenings	114,405	121,734	125,523
Referrals	3,313	4,724	4,897

(a) These figures are larger than the number of births in the calendar year because of the inclusion of some children in the same age group in successive calendar years, migrants and interstate movement.

Of the 22,578 birth notifications received, 20,613 (91.3%) attended a child health centre for a postnatal check examination at 6 weeks of age. 1,965 infants were non-attenders. This is disappointing but can be explained to some extent by the fact that many aboriginal mothers do not attend (there are approximately 1,000 aboriginal births per annum). These children are seen wherever possible in a special programme designed to monitor the progress of aboriginal infants. The outcome for the children of the remaining non-compliant minority of the population remains as an unresolved problem.

In total 95% of the under 1 year-old population attended a clinic approximately nine times per child. 72% of children between one and two years attended twice per child and 36% of 2-5 year-olds attended between one and two times each. These figures indicate an average attendance of approximately five times for each child in all age groups and indicate the continuing need for child health services.

A total of 125,523 STYCAR screenings for developmental hearing and visual problems were performed, an increase of 3,789 (3%) from 1982. Of these 4,897 children were referred for confirmation of diagnosis and management to general practitioners, our own medical officers, the Child Development Centre or Princess Margaret Hospital.

Telephone consultations increased by 12% and indicate a community need for contact with Child Health personnel.

Children's Day Care Health Team

The children's day care health team includes four full-time child health nurses, part-time medical officers, a speech therapist and a social worker. The target population for the health surveillance offered by the team is the children aged 0-6 years attending day care centres in the metropolitan area.

There continues to be a high mobility of these children and a large proportion are attending part-time.

Of the 2,174 children who had full health appraisals, 452 were referred for further opinion giving a referral rate of 20.7%. These are children not previously known to have a medical or social disability, and includes acute and subacute physical illnesses.

Table 3 shows the work done by the staff during 1983 and Table 4 shows the reasons for each referral.

The screening rate for the nurses was 65% of the target population which is acceptable in such a mobile and part-time population and with the small number of staff. However, in view of the high rate of referral this is an area which will need increased attention in future years.

The National Association of Community Based Child Care (NACBCC) was formed in 1982 to promote, support and defend community based children's services and this body has been very active during 1983.

In order to implement the Federal ALP policy, a new expanded children's services programme is to be introduced during this financial year with a large extra allocation of funding to all States. In Western Australia the aim is to increase child card facilities to meet the needs already present in the community which are not as yet being fulfilled.

It is therefore envisaged that there could well be a growth in multi-purpose child care services in the near future, and the health services must ensure their involvement.

Parenthood Unit

This unit provides an information centre and presents programmes for expectant parents and parents in the early postnatal period. It also has resources which are used by professionals in medical and paramedical fields and by students. An attempt has also been made to provide liaison between antenatal educators conducting preparation for birth classes and midwives in the metropolitan area.

The following services are provided.

i) Information centre - staff are available to answer queries, provide books on various topics and video-tapes are also available. Over 1,200 enquirers visited the centre during 1983.

ii) Preparation for parenthood courses. Each programme is made up of eleven sessions (8 talks and 3 films). The programme covers pregnancy, delivery and the progress of the infant up to the age of 12 months. Sixteen sessions were held each week at 10 different centres from mid-January to mid-December. Over 6,000 people attended the course.

iii) Public lectures. An introductory lecture is given each month explaining the value and availability of the preparation for parenthood course. Other occasional lectures for parents were also given.

iv) Sewing group. In the antenatal period these groups provide added peer group support, expertise in sewing skills and the choice of appropriate garments. Forty-two sessions were held in 1983 attended by 837 clients.

v) Several programmes were also held in conjunction with the staff physiotherapist. These included antenatal fitness classes, father-coached preparation for birth classes and postnatal keep fit classes. Only a limited number of these classes can be held because of insufficient staff to cope with the demand.

TABLE 3

NURSES WORK-LOAD DAY CARE HEALTH TEAM

JANUARY 1 - DECEMBER 31, 1983

	TOTAL	BOYS	GIRLS
Number of visits to centres	1,116		
Counselling contacts:			
with parents	595		
with staff	409		
with ECS advisers (a)	38		
Home Visits	125		
Number full health appraisals:	2,174	1,151	1,023
Number review examinations:	751	462	289
Number of children referred to:			
Medical Officer	86	64	22
Family Doctor	104	67	37
Speech Therapist	95	64	31
Social Worker	10	6	4
Hospital	2	2	-
Audiologist	6	4	2
Dental attention	60	33	27
Immunisation update	49	23	26
Child Development Centre	9	9	-
Child Guidance	3	1	2
Guidance Branch	1	-	1
Voice Clinic W.A.I.T.	4	3	1
Home attention	23	11	12
Total No. Referred:	452	287	165

(a) E.C.S. = Early Childhood Services, Department for Community Welfare.

TABLE 4

REASON FOR NURSES' REFERRAL

DAY CARE HEALTH TEAM

REASON FOR REFERRAL	TOTAL	BOYS	GIRLS
Squint	10	8	2
Vision	31	17	14
Speech	92	64	28
Voice quality	7	3	4
E.N.T.	49	25	24
Hearing	45	35	10
Undescended testes	12	12	-
Heart	8	4	4
Caries	60	33	27
Motor Inco-ordination	3	3	-
Developmental assessment	29	25	4
Immunisation incomplete	49	23	26
Social/Behavioural	16	8	8
Orthopaedics	10	8	2
Growth	7	4	3
Paediatric assessment	4	4	-
Skin	3	2	1
School readiness	3	2	1
Other	14	7	7
TOTAL	452	287	165

Schools Resources Unit

This unit works in conjunction with the Education Department and private schools to provide programmes on parenting to high school students. Participation in the programme depends on the agreement of the headmaster, and such agreement is often preceded by a parents' night at which the unit's staff explain to parents and teachers the course content and relevance.

In the schools the 12-session programme is delivered by teachers who have attended a one-day workshop covering the course. Twenty-four of these workshops were held during 1983. Almost 9,000 students attended the course during 1983.

Staff also participated in Year 10 child care courses and Year 11 and 12 early childhood studies courses.

Play Information Mobile Service

This unit continues to provide play information to a wide range of individuals and groups. Table 5 shows the wide range of people with whom they are involved.

TABLE 5

P.I.M.S. STATISTICS

No. of Groups	Name	Attendance
138	Parents Groups	1,047
45	High School	1,034
13	CYSS	149
15	Toymaking Sessions	102
4	Ngala Child Health Students	45
1	Ngala Mothercraft Students	8
1	WAIT Child Health Students	8
1	Play Leaders Group	5
7	Family Day Care Groups	52
1	Red Cross Child Care Course	28
4	Grevillea House and follow-up toymaking	40
2	Girrawheen Day Care and follow-up toymaking	20
1	Mothers of Intellectually Handicapped Children	10
2	Aboriginal Access Programme	40
1	Aboriginal Mothers Group	8
1	Macedonian Mothers	10
1	Polish Mothers	10
3	Mothers of Hearing Impaired Children	27

Correspondence Unit

This is now a comparatively small unit which provides information and resources to those parents of young children for whom the services of Child Health are difficult to obtain. The difficulty is usually related to distance in outer rural areas, and follow-up of 220 birth notifications were made. This unit also provides a telephone answering service for specific child health enquiries. Total calls answered 9,239.

Special Projects:

1. Thiamine Survey - this was commenced in March, 1982 and forms part of a research study undertaken by the Department of Haematology Research Unit, Royal Perth Hospital to determine the normal thiamine blood level of babies (6 weeks to 6 months) and whether they have any relationship to Sudden Infant Death Syndrome. 5,184 blood samples were collected throughout 1983 from babies attending Child Health Centres. A nurse co-ordinator has been provided by the Public Health Department and seconded to the Child Health Section.

2. Immunisation Follow-up - the 1982 project to follow the uptake of primary immunisations was extended in 1983 for children up to five years of age. This included a letter from the centre nurse to parents of children who had attended their Child Health Centres, reminding them about the CDT booster, mumps/measles immunisation and/or the preschool booster, and a tear-off questionnaire for return to the centre, which included the current immunisation status of the particular child. Evaluation of this project will be completed in 1984.

3. Ongoing data collection of Congenital Malformations continues, providing information for the Congenital Malformations Register of Western Australia.

4. Study of Gastro oesophageal Reflux in Perth Children was undertaken in conjunction with Dr. R. Godfrey of Princess Margaret Hospital for Children, who reported the findings at a recent visiting surgeons' conference.

5. A questionnaire circulated to parents attending Child Health Centres invited them to comment on their reasons for attending and whether they found the service provided met their expected needs.

   The results indicated that parents attended clinic for a 'developmental check' (63%) of their child as well as for height, weight and nutritional advice.

   Ninety-six percent indicated satisfaction with the service. This survey shows that Child Health Services fill a need in the community which would be difficult to fill from other resources. If public acceptance and use of this specialised area of preventive care is any indication of its value, then the young parents themselves have identified its importance.

CHILD DEVELOPMENT CENTRE

Dr. T. Parry reports -

As a facility for the multidisciplinary assessment and management of children with a variety of developmental problems, the Child Development Centre has continued its clinical, educational and research activities. The most notable feature about the past year's activity has been the increase in demands on the Centre without any commensurate increase in staff or facilities to meet these demands.

Staff changes have been few and there have been no significant increases. Ms. Annette Crane who had pioneered a programme for children with co-ordination problems was replaced during the year by Ms. Sue Brooks. The educational psychologist is still seconded from the Special Education Branch of the Education Department and contributes very considerably to liaison and management matters related to children with learning problems.

CLINICAL WORK

The rate of increase of referrals has been more rapid than in previous years. Requests for referrals are considered each week by an Intake Committee to ensure that the most appropriate assessment is arranged or that families are directed to alternative services if this is indicated.

TABLE 1

NUMBER OF REFERRALS, 1979-83

1979	1,199
1980	1,147
1981	1,394
1982	1,437
1983	1,676

There was a total of 963 referrals directly to the team, 603 being direct referrals to specific disciplines, not always requiring team management. One hundred referrals were by telephone. It had been anticipated that by this stage the referral pattern to the Child Development Centre would be stable and the marked increase though suggesting referee's approval of the service, has nevertheless been surprising as well as demanding.

TABLE 2

PROFESSIONAL LOAD

Profession	Team Referrals		Direct Referrals		Total Referrals	
	1982	1983	1982	1983	1982	1983
Paediatricians	349	457	161	126	510	583
Social Workers	112	125	83	116	195	241
Occupational Therapists	37	55	36	24	73	79
Psychologists	160	99	94	170	254	269
Physiotherapists	35	86	41	64	76	150
Speech Pathologists	83	141	140	101	223	242

It can be seen that there has been a true increase of referrals to all professionals, either as team or direct referrals. Paediatricians continue to receive the bulk of the initial referrals though it must be appreciated that therapists have larger time commitments with ongoing management programmes.

Psychology referrals in part reflect a research project in association with the follow-up of low birth weight infants, but for the first time in the Centre's experience, a waiting list was necessary for developmental psychology. The waiting time for appointments for clinical psychology is such that in the majority of instances where children require clinical psychology services, referral is made to other agencies. The marked increase in physiotherapy referrals reflects the use being made of the programme for poorly co-ordinated children. Of the 1,676 children referred to the centre during 1983, 1,654 new cases were actually seen during the year.

TABLE 3

CLINICAL COMMITMENTS

	1980	1981	1982	1983
New cases seen	1,253	1,393	1,374	1,654
Review appointments	1,203	1,541	1,680	1,786
Ongoing treatment	2,651	2,769	3,096	3,285
Telephone follow-up	4,567	7,136	9,122	7,617
Patients seen elsewhere	2,494	2,490	1,549	1,785

The overall increase is clearly demonstrated in all areas other than telephone follow-up, this latter decline most likely reflecting an under recording of this mechanism of coping with clinical responsibilities. Ongoing treatment for most disciplines is time consumptive. If an arbitrary unit of ½ hour is used as a measure of time allocation, 6,043 units were spent on new case assessment and 3,707 units for review with 10,084 units being utilised in ongoing treatment. Some therapy sessions take place in a group setting particularly for physiotherapy, occupational therapy and speech therapy. Two hundred and fifty-two sessions were held at the centre during the year attended by 792 children.

TABLE 4

SOURCES OF REFERRAL

Within the Service	1980	1981	1982	1983	
	%	%	%	No.	%
Child Health Nurses	31.6	27.9	26.4	487	29.06
Internal from CDC Team	11.2	15.9	16.7	293	17.48
Medical Officers of C&CHS	10.5	13.3	8.8	117	6.98
School Health Nurses	1.9	1.6	2.5	31	1.85
Preschool Nurses	0.9	0.4	0.6	21	1.25
Community Health Nurses	0.4	0.9	0.5	1	0.06
	56.7	60.0	55.5	950	56.68

Outside the Service	1980	1981	1982	1983	
	%	%	%	No.	%
Medical Specialists			1.5	59	3.5
General Practitioners	11.9	7.5	10.6	151	9.0
Education Department - Guidance Officers	10.1	11.5	7.7	122	7.3
Teachers and Principals	4.09	2.2	1.6	29	1.7
Direct Parent Referrals	9.2	7.4	8.2	135	8.1
Dental Health	3.3	3.4	-	2	0.12
KEMH & PMH	1.6	2.6	7.03	146	8.7
Community Welfare	0.6	1.2	1.3	20	1.2
Child Guidance	0.2	-	0.07	-	-
Miscellaneous	2.17	4.2	6.4	62	3.7
	43.40	40.0	44.5	726	43.32

The pattern is very little changed from the preceding year, the increased referrals from KEMH reflecting the continued involvement in low birth weight follow up because of the shared appointment of one of the paediatricians between CDC and KEMH. As most general practitioners refer direct to the team rather than to individual disciplines, the percentage of the total 963 team referrals is 15.7%. It is also recognised that the bulk of medical referrals are seen by paediatricians at the Centre, but also that a significant number of general practitioner referrals are in fact reflections of Child Health nurse surveillance. This accounts for at least a third of all referrals.

Overall referrals from rural areas were 17%, having increased in total number from the previous year. Dr. Brenda Hammersley's service with Community and Child Health Services as paediatrician linked with the Child Development Centre is established, based on Albany.

Nickol Bay area was again visited twice during 1983 by the senior paediatrician and the senior physiotherapist and there is a need for this service to remote areas to be continued. Again the numbers referred have increased.

MANAGEMENT

Each discipline continues to offer individual treatment programmes which sometimes take place at sites other than the Child Development Centre. The opening of the Midland Unit has meant that children can now receive in particular occupational therapy, closer to their homes. The weekly group for physically disabled preschool children in a group for developmentally delayed in early preschool years has continued but concluded at the end of the year as children have moved on to other facilities. Management offered in groups has been useful particularly for preschool children and provides continuous observation, input from various therapists without multiple appointments being required and also provides the opportunity for parents to be supported and to be enriched in parenting skills.

One group for young preschool children with language delay was again held throughout the year and ten children attended a self esteem group run by a social worker. The team have no doubt as to the value of this form of group management, but it is recognised from the literature concerning early management that the most effective method of management is that which is home based rather than centre based and particularly where parents are involved. Services offered by the Child Development Centre would be further enriched if support professionals were available to run home based programmes. Access to some of the facilities of Princess Margaret Hospital is much appreciated.

EDUCATIONAL ACTIVITIES

The centre has continued to contribute extensively to undergraduate and postgraduate education. Student placements have taken place in social work, psychology, occupational therapy, physiotherapy and speech therapy and fifth year medical students continue to attend the centre regularly as part of their social and preventive paediatric training.

Two registrars in advanced training in paediatrics were employed for twelve months and one has now been admitted as a Fellow of the Royal Australian College of Physicians.

Lecture commitments continue to be time consuming with opportunities needing to be declined because of the pressure of clinical commitments. There were some 117 lectures given throughout the year. There was no Developmental Paediatric Course held in 1983.

The staff of the Child Development Centre continue to be involved in service training within Community and Child Health Services as well as the Child Health Course based at Ngala Mothercraft Home and Training Centre.

Parentcraft public lectures continue to attract large numbers, attendances again needing to be monitored by booking arrangements.

RESOURCES

The pamphlet series "As you grow" was reprinted during the year and 584 copies were sold particularly to other States of Australia. A video tape describing the function of the Child Development Centre was produced and has been well received.

An Adoption Resource Centre was established within the Child Development Centre in 1980 and has provided assistance to those wishing to enquire about all manner of aspects relating to adoption. This facility was set up in consultation with the Department of Community Welfare but is to close in the future as a more expanded programme is to be set up within the Department of Psychology at the University of Western Australia.

RESEARCH

The centre has been able to embark on some research projects assisted by the appointment in 1982 of a research developmental psychologist. The present research relates predominantly to the follow up of very low birth weight infants and their families and the results should be published in 1984.

CONFERENCES

The senior paediatrician attended the annual meeting of the Australian College of Paediatrics at Surfers Paradise in May 18-19, 1983 at which he delivered an invited paper entitled : "The early identification and management of developmental delay : a critical review". He also attended the Second Western Pacific Cerebral Palsy Association Meeting held at the Sir David Brand Centre in Perth in September 6-8, 1983 and delivered a paper entitled : "The multidisciplinary approach to the diagnosis and management of handicap in children".

He has continued active involvement on several State and National Committees and attended a workshop sponsored by the Child, Adolescent and Family Health Services of South Australia from October 31 to November 2, 1983 to consider further training programmes for child health medical officers. A paper entitled : "Violence against children - resources to aid the vulnerable in the community" was delivered at the Public Health Department's Annual Nurses' Conference.

For the Centre's staff to maintain knowledge and skills and creativity commensurate with their professional responsibilities opportunities for ongoing education are essential.

COMMUNITY HEALTH SECTION

Dr. J. Gill reports -

INTRODUCTION

The work done by the Community Health Section has continued and been maintained in all areas. A further two regions were partially "regionalised" on July 1, 1983 viz. Pilbara and Central Regions, thus effectively leading to possible completion of regionalisation as far as Community Health Services are concerned. There is likely to be some modification of the system with the re-organisation of the new Health Department of Western Australia.

The separation of the education staff from the branch has had no major drawbacks, and staff inservice programmes have continued. The training of aboriginal and ethnic health workers continued in the same manner as in previous years with the southwest and metropolitan regions following the format for the more rural regions of holding an inservice of a week's duration at a time, based in Perth.

There was one major disruption in service when the clinic in Wiluna was burned down, together with all records! This, however, gave an opportunity for a new facility, much improved, to be put in as a replacement, and this should hopefully be fully operational next year.

ABORIGINAL HEALTH

The emphasis on Aboriginal health continues. Some of the initiatives of 1982 lead to the formation of about 10 aboriginal health committees from communities throughout the State. Whilst most of these committees are still learning the process of consultation and involvement in policy and delivery of health care services, some are showing excellent initiative in attempting to bridge the vast "knowledge" gap, and demand for health education material is increasing. This augurs well as community participation has to be the watchword in health services.

Two of the aboriginal health workers were promoted during the year to the position of Regional Aboriginal Health Liaison Officers (R.A.H.L.O.).

Client Encounters

Tables 1(a-k) show the number of encounters with Aboriginal clients by nursing staff and health workers, by region. The system of recording this information shows the many difficulties that are faced in ensuring that the system works well as approximately 21,463 encounters were "lost" in the computer due to a technical problem. The overall total therefore was about 6.5% above that of the previous year.

However, it needs to be stressed again that not all encounters by all staff, i.e. medical, nursing and health workers, are recorded. This is so in situations where all members of the team have contact with the client but only one encounter is recorded, as medical officers largely see clients on referral. Further problems arise in the casual encounters out in the community that are often not recorded.

TABLE I (a) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. KIMBERLEY WEST REGION.

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	5676	74	35	37	9	26	5317	11174
HEALTH SCREENING	114	347	11	112	114	45	644	1387
EAR DISEASE	746	676	67	193	54	26	3305	5067
EYE DISEASE	310	377	57	294	224	234	3567	5063
HANSENS DISEASE	30	52	59	652	415	223	95	1526
ANTE OR POSTNATAL CARE	48	61	338	812	3	2	470	1734
ACCIDENTS OR INJURIES	330	453	213	961	269	136	484	2846
ALCOHOL OR OTHER DRUG ABUSE	1		10	33	8	1	10	63
SKIN DISEASES	1142	1362	220	971	429	117	5607	9848
GASTRO-INTESTINAL DISEASE	328	109	25	128	50	41	485	1166
RESPIRATORY DISEASE	745	371	98	507	225	155	832	2933
MUSCULAR DYSTROPHY	3	1		2		1	1	8
MULTIPLE SCLEROSIS		1			1	1		3
RHEUMATOID ARTHRITIS	1	5	4	18	12	5	9	54
EXTENDED CARE				1				1
S.T.D. (KIMBERLEY)	10	28	153	356	130	45	225	947
CARDIOVASCULAR (KIMBERLEY)	5	16	5	426	536	352	94	1434
OTHER	1973	1992	810	5455	2524	1711	21527	35992
TOTAL	11462	5925	2105	10958	5003	3121	42672	81246

TABLE I (D) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. KIMBERLEY EAST REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	1661	104	23	43	1	4	217	2053
HEALTH SCREENING	51	142	3	32	6	22	108	364
EAR DISEASE	214	158	10	47	14	9	198	650
EYE DISEASE	224	76	17	134	65	63	244	823
HANSENS DISEASE	18	41	35	383	191	127	65	860
ANTE OR POSTNATAL CARE	5	8	86	201	2		71	373
ACCIDENTS OR INJURIES	73	114	45	252	61	23	52	620
ALCOHOL OR OTHER DRUG ABUSE			5	30	7		1	43
SKIN DISEASES	404	432	114	357	122	53	62	1544
GASTRO-INTESTINAL DISEASE	230	157	15	232	23	4	12	673
RESPIRATORY DISEASE	434	192	112	309	141	54	26	1268
MULTIPLE SCLEROSIS		1						1
RHEUMATOID ARTHRITIS		1	1	5	10	2	4	23
S.T.D. (KIMBERLEY)	9	10	43	127	10	5	60	264
CARDIOVASCULAR (KIMBERLEY)		10	2	44	28	52	11	147
OTHER	620	1409	780	3612	962	1048	3306	11737
TOTAL	3943	2855	1291	5808	1643	1466	4437	21443

TABLE 1 (c) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. PILBARA REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	5178	376	59	305	29	22	898	6867
HEALTH SCREENING	167	603	131	493	182	146	1884	3606
EAR DISEASE	328	429	28	82	20	22	784	1693
EYE DISEASE	218	196	29	357	176	169	890	2035
HANSENS DISEASE	2	1	20	66	41	143	6	279
ANTE OR POSTNATAL CARE		26	187	349		1	44	607
ACCIDENTS OR INJURIES	126	230	90	665	125	67	32	1335
ALCOHOL OR OTHER DRUG ABUSE		1	4	50	42	4	18	119
SKIN DISEASES	367	876	104	540	92	77	1094	3150
GASTRO-INTESTINAL DISEASE	120	34	7	64	23	14	50	312
RESPIRATORY DISEASE	392	173	64	276	157	108	33	1203
MUSCULAR DYSTROPHY	9			3	2			14
RHEUMATOID ARTHRITIS		4	2	5	19	49	1	80
OTHER	1024	1223	677	5077	1766	1617	5282	16666
TOTAL	7931	4172	1402	8332	2674	2439	11016	37966

TABLE 1 (d) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. NORTHERN (CENTRAL) REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	1994	65	84	105	2	1	280	2531
HEALTH SCREENING	123	1043	73	420	105	48	1887	3699
EAR DISEASE	269	172	30	89	12	1	64	637
EYE DISEASE	106	102	3	59	39	31	130	470
HANSENS DISEASE			1	5	20		2	28
ANTE OR POSTNATAL CARE	1	15	144	224			77	461
ACCIDENTS OR INJURIES	99	287	66	340	42	25	237	1096
ALCOHOL OR OTHER DRUG ABUSE		5	20	59		1	21	106
SKIN DISEASES	296	1029	66	336	83	16	265	2091
GASTRO-INTESTINAL DISEASE	37	7	5	20	4	5	9	87
RESPIRATORY DISEASE	50	20	7	46	41	30	27	221
RHEUMATOID ARTHRITIS				2	6	3	3	14
OTHER	358	665	364	3867	750	665	3135	9804
TOTAL	3333	3410	863	5572	1104	826	6137	21245

TABLE I (e) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. IRWIN REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	1941	38	76	253	2	5	189	2504
HEALTH SCREENING	23	41	23	46	4	5	416	558
EAR DISEASE	173	87	1	41	1	5	121	429
EYE DISEASE	44	55	4	32	30	2	98	265
HANSENS DISEASE			1	4			1	6
ANTE OR POSTNATAL CARE	2	3	110	284		1	74	474
ACCIDENTS OR INJURIES	15	28	6	30	4		42	125
ALCOHOL OR OTHER DRUG ABUSE	1			21	1	2	6	31
SKIN DISEASES	135	247	10	120	18	17	45	592
GASTRO-INTESTINAL DISEASE	33	12	5	18	6		8	82
RESPIRATORY DISEASE	26	5	1	12	3	5	51	103
RHEUMATOID ARTHRITIS	1		1	6	1	20		29
OTHER	310	385	367	1720	362	144	2940	6228
TOTAL	2704	901	605	2587	432	206	3991	11426

TABLE 1 (f) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. GOLDFIELDS

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	5153	162	35	66		1	776	6193
HEALTH SCREENING	231	7935	289	4010	282	188	8711	21646
EAR DISEASE	378	607	34	32	7	6	642	1706
EYE DISEASE	53	41	8	71	57	50	187	467
ANTE OR POSTNATAL CARE	19		123	245			49	436
ACCIDENTS OR INJURIES	75	111	82	395	71	34	122	890
ALCOHOL OR OTHER DRUG ABUSE	4	13	10	65	20	3	236	351
SKIN DISEASES	306	871	116	440	59	33	534	2359
GASTRO-INTESTINAL DISEASE	207	16	9	67	20	13	35	367
RESPIRATORY DISEASE	244	60	22	202	98	68	91	785
MULTIPLE SCLEROSIS						2	3	5
RHEUMATOID ARTHRITIS				7	11	13	27	58
OTHER	543	708	179	1497	425	217	5083	8652
TOTAL	7213	10524	907	7097	1050	628	16496	43915

TABLE 1 (g) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. METROPOLITAN (NORTH) REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	2289	41	30	194	1		692	3247
HEALTH SCREENING	21	128	64	151	41	7	139	551
EAR DISEASE	114	87	8	41	1		15	266
EYE DISEASE	47	53	8	23	7	6	7	151
HANSENS DISEASE		1	1				7	9
ANTE OR POSTNATAL CARE	5	1	192	350	1		125	674
ACCIDENTS OR INJURIES	63	35	17	110	40	3	24	292
ALCOHOL OR OTHER DRUG ABUSE		3	4	65	11	16	7	106
SKIN DISEASES	164	106	40	89	10	1	61	471
GASTRO-INTESTINAL DISEASE	86	12	5	31	3	1	14	152
RESPIRATORY DISEASE	58	1	1	18	7	3	5	93
MUSCULAR DYSTROPHY		1		2			13	16
MULTIPLE SCLEROSIS				4	6	5	768	783
RHEUMATOID ARTHRITIS				1	1		1	3
HOSPITAL VISITS METRO.	376	309	110	636	97	87	28	1643
OTHER	427	285	322	2160	318	122	4581	8215
TOTAL	3650	1063	802	3875	544	251	6487	16672

TABLE 1 (h) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. METROPOLITAN (SOUTH) REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	1516	46	41	284	5	2	39	1933
HEALTH SCREENING	33	8	20	164	22		40	287
EAR DISEASE	103	82	6	28			5	224
EYE DISEASE	18	9	1	23	3	1	5	60
HANSENS DISEASE		4		1				5
ANTE OR POSTNATAL CARE		2	90	196			10	298
ACCIDENTS OR INJURIES	12	14	4	37	19		9	95
ALCOHOL OR OTHER DRUG ABUSE		2	1	32	4		8	47
SKIN DISEASES	80	72	8	77	8	1	85	331
GASTRO-INTESTINAL DISEASE	21	13	7	21	1		2	65
RESPIRATORY DISEASE	23	11	2	9	1		3	49
MULTIPLE SCLEROSIS	1							1
OTHER	314	275	164	1136	137	64	4322	6412
TOTAL	2121	538	344	2008	200	68	4528	9807

TABLE 1 (i) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. SOUTH WEST (NORTH) REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	3160	35	24	129	10	9	99	3466
HEALTH SCREENING	34	12	2	26	4	4	30	112
EAR DISEASE	307	344	19	39	3	40	25	777
EYE DISEASE	26	21	6	32	35	4	8	132
ANTE OR POSTNATAL CARE	1	4	226	278		1	24	534
ACCIDENTS OR INJURIES	69	107	18	157	36	6	14	407
ALCOHOL OR OTHER DRUG ABUSE				40	6	1	6	53
SKIN DISEASES	231	232	28	152	24	7	60	734
GASTRO-INTESTINAL DISEASE	127	21	9	19	4	4	20	204
RESPIRATORY DISEASE	179	31	17	74	27	4	27	359
MULTIPLE SCLEROSIS				8			1	9
RHEUMATOID ARTHRITIS		3		5	19	3	1	31
OTHER	344	537	630	3986	975	647	2998	10117
TOTAL	4478	1347	979	4945	1143	730	3313	16935

TABLE 1 (j) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. SOUTH WEST (SOUTH) REGION

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	2992	75	57	298	6	1	399	3828
HEALTH SCREENING	148	148	30	90	33	11	570	1030
EAR DISEASE	506	352	27	44	9	4	40	982
EYE DISEASE	14	24	8	17	13	1	15	92
HANSENS DISEASE							1	1
ANTE OR POSTNATAL CARE	10		241	413	2		190	856
ACCIDENTS OR INJURIES	71	119	42	148	28	12	87	507
ALCOHOL OR OTHER DRUG ABUSE				62	32	2	83	179
SKIN DISEASES	220	187	32	238	31	14	81	803
GASTRO-INTESTINAL DISEASE	74	15	14	43	13	18	11	188
RESPIRATORY DISEASE	52	22	2	43	18	17	20	174
MUSCULAR DYSTROPHY	2			1	6		6	15
RHEUMATOID ARTHRITIS			3	4	2		4	13
OTHER	328	507	375	2349	626	593	4703	9481
TOTAL	4417	1449	831	3750	819	673	6210	18149

TABLE 1 (k) NUMBER OF ENCOUNTERS WITH ABORIGINAL CLIENTS, 1983. STATE

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	31560	1016	464	1714	65	71	8906	43796
HEALTH SCREENING	945	10407	646	5544	793	476	14429	33240
EAR DISEASE	3138	2994	230	636	121	113	5199	12431
EYE DISEASE	1060	954	141	1042	649	561	5151	9558
HANSENS DISEASE	50	99	117	1111	667	493	177	2714
ANTE OR POSTNATAL CARE	91	120	1737	3352	8	5	1134	6447
ACCIDENTS OR INJURIES	933	1498	583	3095	695	206	1103	8113
ALCOHOL OR OTHER DRUG ABUSE	6	24	54	457	131	30	396	1098
SKIN DISEASES	3345	5414	738	3320	876	336	7894	21923
GASTRO-INTESTINAL DISEASE	1263	396	101	643	147	100	646	3296
RESPIRATORY DISEASE	2203	886	326	1496	718	444	1115	7188
MUSCULAR DYSTROPHY	14	2		8	8	1	20	53
MULTIPLE SCLEROSIS	1	2		12	7	8	772	802
RHEUMATOID ARTHRITIS	2	13	11	53	81	95	50	305
EXTENDED CARE				1				1
HOSPITAL VISITS METRO.	376	309	110	636	97	87	29	1644
S.T.D. (KIMBERLEY)	19	38	196	483	140	50	285	1211
CARDIOVASCULAR (KIMBERLEY)	5	26	7	470	564	404	105	1581
OTHER	6241	7986	4668	30859	8845	6828	57879	123306
TOTAL	51252	32184	10129	54932	14612	10308	105290	278707 *

* Note: 21,463 encounters are not included as their details were lost in the computer.

The main reasons of encounter have remained fairly consistent over the past three years, very largely as the main health problems have been identified and appropriate priority is being given to them.

The re-examination of the system of collecting these encounters did not produce any immediate results because of various constraints such as cost and availability of personnel. However, some improvements are obviously necessary, such as attempts to ensure as complete as possible a recording of all encounters as these are "occasions of service". It is obvious however that the system needs to be kept simple and reasonably cheap so that more sophisticated and expensive systems can be developed for appropriate epidemiological purposes. It might even be worthwhile looking at the possibility of introducing "notifications" of certain diseases within this community as a means of documenting the overall secular trends of such diseases.

Nutritional Anthropometry

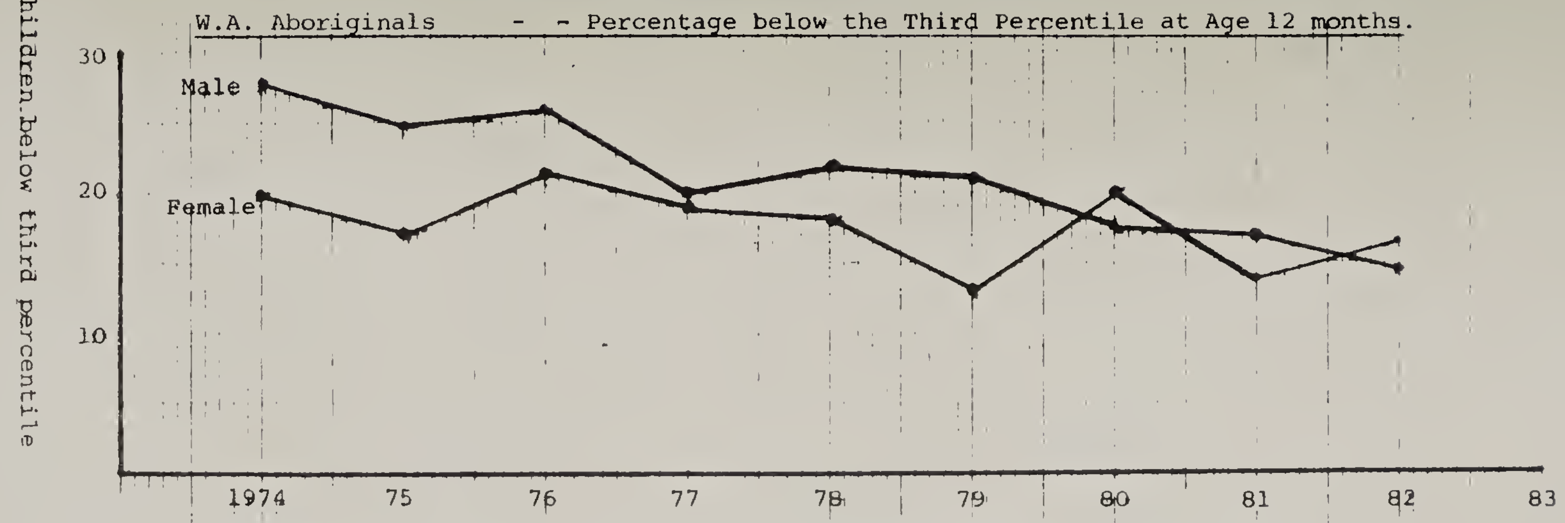
This ongoing programme continues to provide encouraging trends in changes. Figure 1 shows the percentage of male and female Aboriginal children below the third percentile for each annual cohort at 12 months of age.

With regards to weight, the male children continue to show a gradually decreasing percentage who are below the third percentile. With the females however, the trend is rather erratic, and no reasonable explanation can be offered for changes. Again, environmental factors could be excluded as these are likely to affect both sexes.

The continuing decline in percentages below the third percentile for height for both males and females is encouraging especially if the changes over the past eight years are considered. Many misgivings have been expressed with regard to the collection of this data, but there would appear to be little doubt that this data continues to support the observation of field staff who have worked with this community over the years. However, it is clear that nutrition of the Aboriginal child is still an important health concern, and much effort continues to be expended on nutritional education and encouragement of breast feeding.

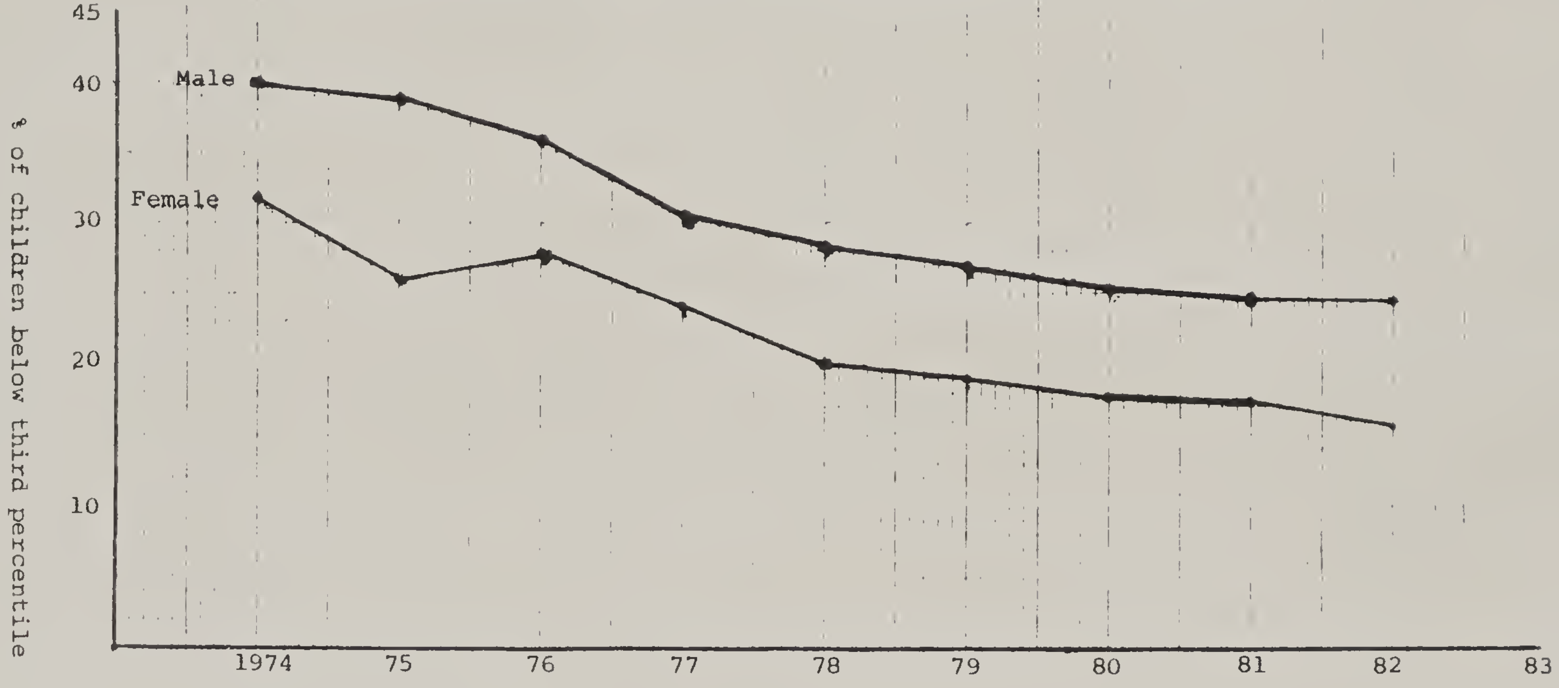
Fig. 1

WEIGHT OF W.A. ABORIGINAL CHILDREN, PERCENTAGE BELOW THE THIRD PERCENTILE FOR EACH ANNUAL COHORT AT THE AGE OF 12 months.



W.A. Aboriginals - - Percentage below the Third Percentile at Age 12 months.

HEIGHT OF W.A. ABORIGINAL CHILDREN, PERCENTAGE BELOW THE THIRD PERCENTILE FOR EACH ANNUAL COHORT AT THE AGE OF 12 MONTHS.



Trachoma and Eye Health

Screening programmes were continued throughout the State and Figure 2 shows the localities covered and the prevalence of follicular trachoma in children up to 10 years of age. During the year 4,676 persons were screened for trachoma and other eye diseases as part of the ongoing programme. (Table 2).

The prevalence rates of follicular trachoma in children under 10 years of age continue to show improvements in most areas. However, the rates remain high in the inland areas of the State. Ophthalmologists visiting the communities continue to comment on the reduced clinical severity of the disease that they are now seeing.

There is thus a continuing need for maintaining an increased surveillance of those communities where rates are high and to continue to monitor the other communities on some regular annual basis to treat the cases detected.

TABLE 2

TRACHOMA SURVEYS 1983

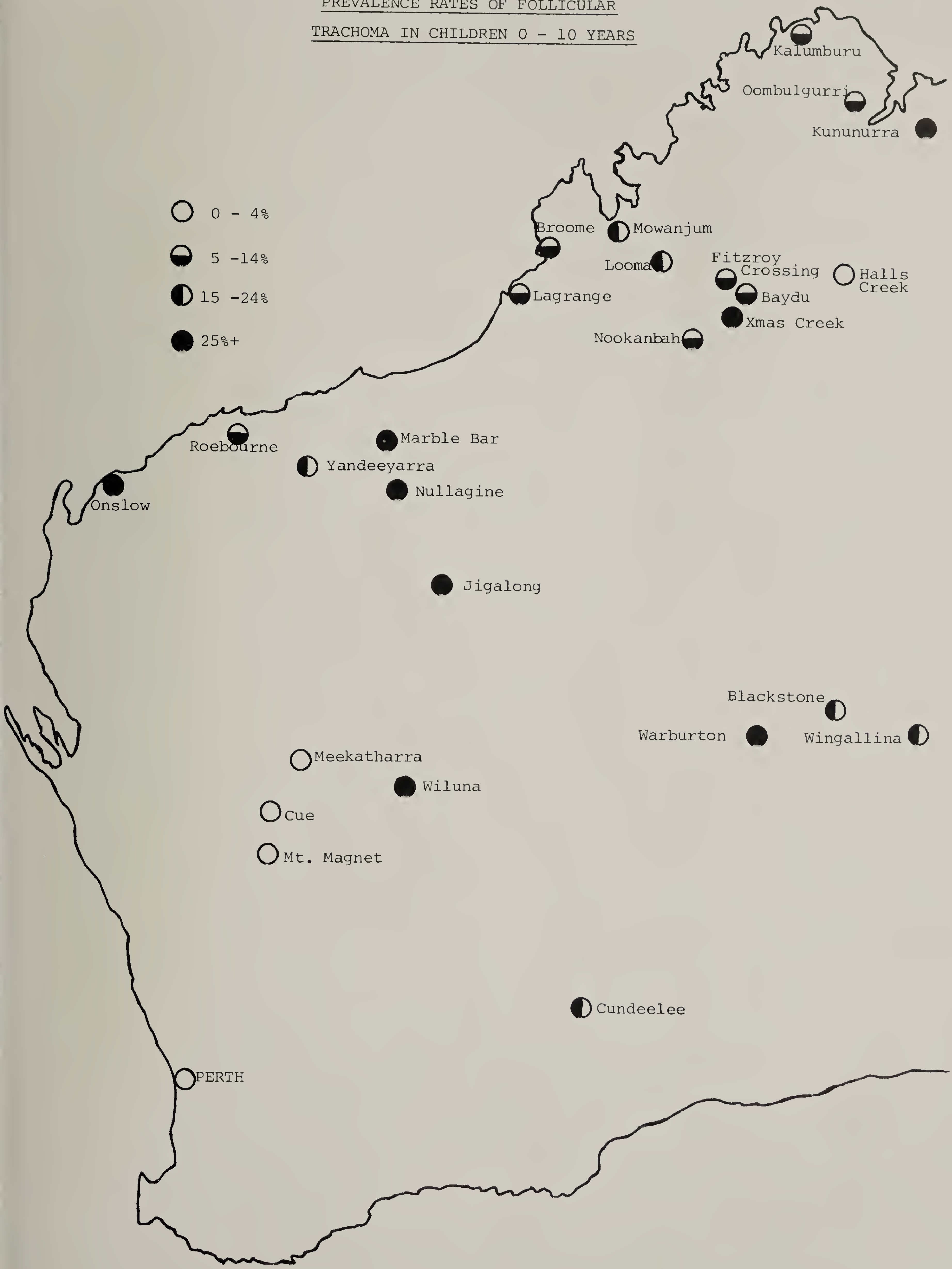
Region	Number of People Screened
Kimberley	2,003
Pilbara	1,159
Northern (Central)	910
Goldfields	401
Metropolitan	203
TOTAL	4,676

FIGURE 2

TRACHOMA SURVEYS 1984

PREVALENCE RATES OF FOLLICULAR

TRACHOMA IN CHILDREN 0 - 10 YEARS



Immunisation

Centralised computer records of immunisation status in aboriginal children continue to assist in monitoring the coverage. Table 3 shows the coverage rates by region. This continues to demonstrate that the coverage is better documented where only one service is involved in the provision of the service. Hopefully, the plans for the future to computerise records of all immunisations in the State will give a more complete picture of what is actually happening.

The table now includes birth cohorts assessed at 24 months for measles immunisation as it is not reasonable to assess the coverage at the age of recommended commencement of the vaccination.

Leprosy

A total of 14 cases were detected amongst Aboriginals during the year. Table 4 shows the trend of annual incidence of the disease in the endemic regions, i.e. Kimberley and Pilbara; 9 cases were detected in the former and 4 in the latter region. One case was detected in the metropolitan region, although the case was most probably infected in the endemic area.

In addition, 4 non-Aboriginal cases were detected during the year and of these 2 were imported cases who subsequently returned to their countries of origin, i.e. Indonesia and Thailand. This is interesting, as it was thought at one time that diseases of this type, occurring most commonly in those of the lower socio-economic group, were not likely to be important in terms of international spread!

TABLE 3

IMMUNISATION COVERAGE OF ABORIGINAL CHILDREN AT 12 MONTHS OF AGE (EXCEPT 1981 AND 1982 BIRTH COHORTS) AS AT 15.3.84 BY REGION (FIGURES ARE PERCENTAGES OF ELIGIBLES)

1981 Cohort	Kimberley	Pilbara	Northern	Goldfields	North South West	South South West	North Metropolitan	South Metropolitan	STATE
* Measles at 24 months of age	93.6	85.2	58.3	48.3	53.3	46.4	27.2	57.4	65.8
1982 Cohort									
Measles at 24 months of age	93.1	80.6	58.0	38.4	52.1	20.0	41.0	37.0	62.9
1983 Cohort									
+ B.C.G.	96.6	84.6	22.5	5.5	3.0	9.0	2.7	0	45.8
Sabin 1	98.8	96.1	80.6	72.2	81.8	81.8	52.7	80.0	84.3
Sabin 2	93.3	92.3	74.1	61.1	69.6	68.1	33.3	80.0	75.3
Sabin 3	83.3	73.0	61.2	22.2	54.5	45.4	16.6	30.0	58.2
TA/CDT 1	98.8	96.1	80.6	66.6	81.8	81.8	52.7	80.0	83.9
TA/CDT 2	93.3	92.3	77.4	55.5	69.6	59.0	33.3	80.0	74.6
TA/CDT 3	84.4	73.0	58.0	22.2	60.6	40.9	13.8	30.0	58.2
Measles	20.0	15.3	0	11.1	0	4.5	2.7	10.0	10.0

+ B.C.G. at birth offered only in North West of State

TABLE 4

KIMBERLEY REGION, WESTERN AUSTRALIA

ANNUAL INCIDENCE OF LEPROSY AMONGST ABORIGINES

Year	Aboriginal Population	Number of new cases notified	Incidence new cases/1000/annum
1971	7790	21	2.7
1972	8077	8	1.0
1973	8368	10	1.2
1974	8641	14	1.6
1975	8930	8	0.9
1976	9221	9	1.0
1977	9463	11	1.2
1978	9679	6	0.6
1979	9858	9	0.9
1980	10094	4	0.4
1981	10266	4	0.4
1982	10492	5	0.5
1983	10627	9	0.8

PILBARA REGION, WESTERN AUSTRALIA

ANNUAL INCIDENCE OF LEPROSY AMONGST ABORIGINES

Year	Aboriginal Population	Number of new cases notified	Incidence new cases/1000/annum
1971	2873	1	0.3
1972	2999	0	Nil
1973	3099	4	1.3
1974	3219	1	0.3
1975	3346	3	0.9
1976	3451	8	2.3
1977	3525	5	1.4
1978	3675	5	1.4
1979	3639	1	0.3
1980	3731	3	0.8
1981	3813	3	0.8
1982	3883	3	0.8
1983	4392	4	0.9

Ear Health

Although detection and treatment of middle ear disease constitutes one of the major initiatives of field staff, specialised teams, comprising one or two medical officers and an audiologist, have continued to visit the remote communities to assist in this programme.

The localities visited during the year were Cundeelee in the Goldfields, Meekatharra and Wiluna in the central region, Jigalong, Roebourne and Yandeyarra in the Pilbara, and Halls Creek and Fitzroy Crossing in the Kimberley.

At Cundeelee, a reassessment of the ear health of the child population was done. 42 children were seen of whom 17 (40%) had hearing loss and 19 (45%) had perforations of the ear drum. Although there was little overall change from the results of December, 1981 those children in the school age group showed a significant improvement. It was considered that this was part of the overall improvement in general health shown by these children as a result of a hygiene programme run by the Community Health staff and the school.

At Roebourne only those children previously identified as having middle ear disease and/or hearing loss were seen. An attempt was made to evaluate the ear-suction programme previously reported but no significant difference was detected between simple ear toilet and suction toilet. A total of 98 children were seen and 15 (15%) had discharging ears. Of these 7 had had discharging ears since the previous survey.

At Yandeyarra 35 children under 12 years were screened and 13 (37%) had a hearing loss, and 8 (23%) had perforated eardrums. There was a slight improvement compared with results of the previous year.

A survey was not done at Meekatharra and only selected children who were referred were seen. At Wiluna, the entire school population was included in the survey. 90 children were seen, 37 (41%) had a hearing loss and 29 (32%) had perforations.

One of the observations from surveys done has been the fact that closed middle ear disease (serous otitis media; "glue" ear) is an important cause of hearing loss in the aboriginal child and it is not just the "open" or discharging ears that are a problem. Further studies are continuing and some definitive results on the extent of this problem should be available in the future.

The survey findings have demonstrated that hearing loss of educational significance is quite prevalent in many of the remote communities. As a result the FM (Frequency Modulated) amplification project was started at Jigalong at the end of 1982. This was continued during the year and was extended to Fitzroy Crossing and Halls Creek.

At Jigalong, 12 children were put through the amplification programme, which ran well for a term before frequent student absence and staff illnesses led to a complete cessation of the project. A further attempt is to be made in 1984. At Fitzroy Crossing and Halls Creek a total of 15 children are being put through the programme, and so far it has been well received. Further evaluation will need to be done, but initial reports from teachers are very encouraging.

Aboriginal Mortality Rates

Overall mortality rates in the aboriginal population are not yet available, although it is expected that 1983 would be the first year for which such data becomes available. This project, in conjunction with the Registrar General of Births and Deaths, W.A., proceeded quite smoothly through the year, and it is hoped that such data will in the future become available routinely.

Data on infant deaths continues to be available. There were 1,136 Aboriginal live-births, and the various indices were as follows:-

(i)	Number of still-births	=	14
	Still-birth rate/1000 births	=	12.2
(ii)	Number of neonatal deaths	=	11
	Neonatal death rate/1000 live-births	=	9.7
(iii)	Number of post-neonatal deaths	=	17
	Post-neonatal death rate/1,000 live-births	=	15.0
(iv)	Number of infant deaths	=	28
	Infant death rate/1000 live-births	=	24.6

As would be expected the changes from previous years are not dramatic and neither is it expected.

Alcohol Abuse Problems

The branch has continued to work closely with other agencies, eg. W.A. Alcohol and Drug Authority and various communities, to assist in tackling this very difficult problem. The role has continued to be mainly supportive to groups attempting their own interventions, and making available educational material to health workers and the community. In progress now is the development of two video programmes; one on the effects of alcohol on the body and the other on alcohol rehabilitation programmes. This is being done through the support of the Education Services Branch of the department in consultation with aboriginals and aboriginal groups such as Kulila Association.

Aboriginal Health Worker Training

The training programme has continued as in previous years with the bulk of the training being on the job. In addition, four weeks of group inservice training has continued. The monitoring of the training programme is achieved through the use of individual achievement record sheets and the data presented gives an overview of the progress to date.

The achievement record sheets selected for each Aboriginal health worker are the result of a consideration of training needs of the member and are dependent on the health worker's individual duty statement.

During the period, the number of achievement record sheets completed and assessed was more than double that of the previous 12 months, and Table 5 shows the progress.

TABLE 5

RE: QUANTITATIVE OF ACHIEVEMENT RECORD SHEET UTILIZATION WITHIN THE DEPARTMENTS ABORIGINAL HEALTH WORKER TRAINING PROGRAM AS OF FEBRUARY 1ST, 1984.

	Health Workers listed as active.	Achievement Records Issued but not started.	Achievement Records Started but not completed.	Achievement Records Completed but not assessed.	Achievement Records Assessed and on file 2/1/84.	Achievement Records Assessed and on file 1/3/83.	Achievment Records Total in use.
KIMBERLEY	27	135	65	10	87	71	297
PILBARA	15	25	11	0	25	13	61
CENTRAL	15	65	13	26	55	22	159
E.GOLDFIELDS	16	93	9	11	38	0	151
METRO	11	91	30	6	22	27*	149
S/WEST	16	70	32	20	65		187
TOTALS	100	479	160	73	292	133	1004

*Metro and South West combined figure.

PAP SMEAR TRIAL

A pap smear trial was started at two bases in the metropolitan region during the year. The objective of this trial was largely to study the feasibility of providing this service from community health bases and to look at the practical problems arising out from such an attempt.

Only 30 females, aged 16 years to 38 years, took advantage of the few clinics provided. Amongst these 3 had trichomoniasis, 1 monilia and 2 actinomyces-like organisms. No evidence of metaplasia was detected.

The uptake thus was rather poor, but it did demonstrate that there is a need to increase education of clients about the value of pap smears. This did, in fact, lead to development of some educational material in the form of a comic produced with the assistance of the Health Education Unit. The trial also demonstrated that such a service can be provided at the clinics provided a female medical officer is available. It is anticipated that the service will continue to be provided in short campaigns, so as to increase awareness in the Aboriginal community.

GENERAL COMMUNITY

Community Health staff continue to provide services to members of the general community, with special emphasis on the disadvantaged. Table 6 shows the number of encounters with non-aboriginal clients during the year. Here again it needs to be stressed that these encounters are mainly with individuals on a person-to-person basis, but that many encounters occur with clients in groups. Some of these groups include day care for the elderly, keep fit and activity groups for the elderly, weight reduction groups, stress management, antenatal classes and general health education activities in a wide range of topics.

In addition, nursing staff especially continue to be involved with special interest groups as detailed below.

Muscular Dystrophy

The main role of the nurse continues to be an educational and supportive one for the clients, with some assistance being provided as necessary to assist the medical staff in investigative procedures.

A total of 11 new clients were added to those requiring services, and 4 died, leaving a total of 140 that continue to be visited on a regular basis.

Amongst the new cases, the distribution of types detected were as follows:-

Duchenne	:	3
Fiedreichs ataxia	:	3
Muscle fibre dysfunction	:	2
Dystrophia myotonica	:	2
Limb-girdle	:	1

Amongst those on follow-up, the largest number is amongst the Dystrophia myotonica (37.5% of total) and the Duchenne type (21.4%).

Professor Kakulas continues to be most supportive to our staff member.

Western Australian Arthritis and Rheumatism Foundation (W.A.A.R.F.)

The W.A.A.R.F. field nurse service has been continued during the year, with some major changes in staffing, as two staff left just after the middle of the year, and replacements became available only towards the end of the year. These new members to the team will need to develop their skills in dealing with the special problems of those with arthritis such as the initial assessment, counselling skills, exercise programmes, splinting techniques, etc.

TABLE 6. NUMBER OF ENCOUNTERS WITH NON-ABORIGINAL CLIENTS, 1983.

	0 - 5	6 - 14	15 - 19	20 - 49	50 - 64	65 +	Unknown	Total
ENCOUNTER CODES								
UNDER FIVES PROGRAMME	3211	428	93	888	10	12	286	4928
HEALTH SCREENING	469	1369	97	520	223	625	580	3883
EAR DISEASE	133	196	23	123	30	29	74	608
EYE DISEASE	73	77	17	110	46	60	54	437
HANSENS DISEASE	1	4	3	53	14	11	3	89
ANTE OR POSTNATAL CARE	47	3	77	697	0	4	431	1259
ACCIDENTS OR INJURIES	110	215	114	501	137	101	69	1247
ALCOHOL OR OTHER DRUG ABUSE	3	0	4	109	62	86	55	319
SKIN DISEASES	171	151	51	353	121	448	257	1552
GASTRO-INTESTINAL DISEASE	167	62	14	173	47	72	29	564
RESPIRATORY DISEASE	336	235	21	331	254	244	150	1571
MUSCULAR DYSTROPHY	8	33	46	410	145	18	11	671
MULTIPLE SCLEROSIS	1	0	0	296	81	39	16	433
RHEUMATOID ARTHRITIS	0	2	0	14	12	74	5	107
EXTENDED CARE								
HOSPITAL VISITS (METROPOLITAN)						2		2
S.T.D. (KIMBERLEY)		9		6	15	9		39
OTHER	891	951	500	5850	2151	2895	2159	15397
TOTAL	5621	3735	1060	10434	3348	4729	4179	33106

The country visits continued, and as reported on previous occasions have been very well received by clients living far from the towns, as their therapy has been assessed and "tailored" for their own specific needs.

Independent Living Centre

The new locality to which this centre moved in the previous year was improved, and the new display area became functional. The staff at the centre have continued to provide information services and to demonstrate the aids available to assist in independent living. Visitors to the centre seeking information and assistance included 1,196 clients and 680 professionals.

Hospital Liaison Section

The staff in this section have continued to assure, as far as is possible, that patients arriving from, and being repatriated to the rural areas, suffer as little as possible dislocation of their lives. Many problems still need to be resolved, although the fact that organisational changes are frequent largely mitigates against this! However, the very few "mishaps" that have occurred demonstrate the dedication and flexibility of the staff in dealing with the day-to-day problems that arise.

A total of 721 clients were assisted by this section. Most of the repatriations were to the Kimberley (29%) and central regions (29%). The majority were flown back to their homes either through the Airlines of Western Australia (38.8%) or by the Royal Flying Doctor Service (27.9%).

Multiple Sclerosis

One of the major difficulties encountered by the nursing staff in this service has been the lack of referral of cases from neurologists, and some improvement was noted when regular visits from a departmental medical officer took place. This, unfortunately, was interrupted fairly frequently because of staffing problems, but it is hoped that this will resolve in the near future.

A total of 468 clients were visited during the year, of which 21 were new cases.

Hansen's Clinic

The special metropolitan clinic is held weekly at the Queen Elizabeth II Medical Centre, and provides a service in the non-endemic area of the State. There were 16 persons continuing on active treatment at the end of the year and 63 were on regular surveillance in the metropolitan area.

Indo-Chinese Immigrants

Table 7 shows the number of immigrants arriving during the year by month of arrival and Table 8 shows the main conditions found on initial screening.

TABLE 7

INDO-CHINESE - REFUGEE IMMIGRANTS, 1983

Month of Arrival		Number
January		86
February		27
March		53
April		108
May		111
June		153
July		87
August		87
September		94
October		38
November		95
December		90
	TOTAL	1,029

TABLE 8

INDO-CHINESE REFUGEE IMMIGRANTS

RESULTS OF INITIAL SCREEN

Disease	Number Detected	Percentage
Tuberculosis	45	4.3
Hansen's	0	0
Syphilis	47	4.5
Previous Treponemal Infection	28	2.7
Scabies	182	17.6
Pityriasis Versicolor	101	9.8
Tinea	31	3.0
Trachoma	18	1.7
Pediculosis	393	38.1
Dental Caries	320	31.1
Anaemia	7	0.6
Thalassaemia Trait	54	5.2
Thyroid Problems	8	0.7
Hypertension	24	2.3
Malaria	2	0.2
Vision Problems	22	2.1
Cataracts	4	0.4
Ear Problems	19	1.8
Giardia lamblia	17	1.6
T. Trichiura	46	4.4
Ascariasis Lumbricoides	6	0.5
A. Duodenal	25	2.4
Strongyloidiasis	6	0.5
Chlonorchiasis	3	0.3
S. Typhi	0	0
Other Salmonella	22	2.1
Shigella	2	0.2
H. Nana	4	0.4
TOTAL IMMIGRANTS	1,029	100.0

The main problems detected continue to be pediculosis, dental caries, and scabies. The major diseases of public health importance detected is tuberculosis. Intestinal parasites are very common, but the data does not confirm this as blanket presumptive treatment with Combantrin given about a week before stool specimens are taken. Those positive are thus mainly those in whom the single dose treatment has failed.

There were no leprosy cases detected on arrival, and no carriers of Salmonelle typhi were found during the year.

SCHOOL HEALTH SECTION

The School Health Service of Western Australia provides a range of services to school children and their families with the emphasis on prevention of illness and disease. The services include health promotion and education, health screening and surveillance, counselling and referral in addition to primary care for secondary aged students who may be sick or injured at senior high schools within the State.

Programmes are provided for children in pre-schools, primary schools and high schools, also for those in priority schools and special education facilities in metropolitan and country areas.

Each school has a nurse and a medical officer who are directly responsible for delivery of health services to those children enrolled.

In the metropolitan area there are multidisciplinary teams working from seven of the eight district centres. Three teams include child health, school health and community health nurses, a medical officer, guidance officer, social worker, speech clinician and a secretary. Three teams comprise child health and school health nurses, medical officer and a team of guidance officers, counselling assistants and secretary provided by the Education Department. One team includes child health, school health and community health nurses with one medical officer and secretary. One team has only school health nurses and a medical officer.

School health services in the most remote towns of the State are provided by the local community health nurses and medical officers. Metropolitan based medical officers continue to make country visits each term to towns in the south west of the State.

1. STAFF

1.1 There was no change in medical officer positions during 1983.

1.2 Nurses

(i) M. Durant retired from the Innaloo Centre, having given valuable services to the school health section for fifteen years.

Other staff who resigned during the year were B. Cail (Dalwallinu), J. Campbell (Merredin), D. Higgins (Roebourne), S. Piesse (Wagin), J. Calnan, S. Cole, G. Hooke, A. McVey, N. Punch, M. Ross, C. Stedman, M. Stevens, V. Sutcliffe all from Perth.

(ii) New staff appointed to positions in Perth:

R. Allan
D. Davies
D. Fraser-Gillard
J. Godecke
J. Greig
C. Mason
C. Mercer
F. Moffett
S. O'Grady
J. Raybould
J. Skeet
J. Spencer
V. Stonehouse

New staff appointed to positions in other regions:

H. McArthur to Halls Creek.
P. Moore to Carnarvon.

(iii) P. Deery transferred from Pilbara Region to Kununurra in Kimberley Health Region, H. Ottoway transferred from Scarborough Senior High School to a district position, C. Rose transferred from Kimberley Health Region to Duncraig Senior High School, L. Stevens transferred from Rossmoyne Senior High School to Hollywood Senior High School.

H. Swain transferred from school health to Youth Health Services in April 1983.

1.3 Therapists

(i) Occupational therapists - K. Fletcher resigned from Koondoola Special School and J. Rankin from Willetton Special School.

(ii) Physiotherapists - J. Gunzberg and C. Norman resigned from Koondoola Special School and D. Webb from Willetton Special School.

(iii) Speech therapists - No resignations during 1983.

(iv) New staff appointed during the year were.

N. Longmire (occupational therapist),
G. Bolleter (physiotherapist) and
F. Broadhurst (speech therapist) to Willetton Special School.

A. MacKinnon (occupational therapist) and
R. Mori and G. Norman (physiotherapists) to Koondoola Special School.

Speech therapists R. Candler to Southwell Centre, K. Godfrey to Queens Park Centre and S. Mandy to Koondoola Centre.

1.4 Social Workers

(i) L. Calder resigned from Willetton Special School in second term.

(ii) M. Almeida was appointed to the part-time position at Queens Park Centre in first term and to the part-time position at Willetton Special School in third term.

2. STAFF DEVELOPMENT

2.1 Medical Officers

(i) A five day inservice programme was held in June. This included clinical and developmental paediatrics, health promotion, public health needs and programme evaluation. A field experience day involved all participants in a point prevalence tympanometry study on year 1 children. A variety of clinic placements were incorporated for those medical officers expressing specific requirements and included dermatology, cardiology, E.N.T. and ophthalmology specialties.

(ii) Attendance at meetings of the paediatric post graduate programme organised by Princess Margaret Hospital.

(iii) Attendance at case discussions organised by child guidance branch of Mental Health Services.

(iv) Participation in course on Epidemiology and Biostatistics run by staff of the National Health and Medical Research Council in conjunction with the Western Australian University Unit of Epidemiology by two (2) medical officers.

(v) Attendance at lectures and seminars, including discussion groups with visiting overseas medical practitioners Dr. R. Blum (adolescent medicine), Minnesota, United States.

Dr. Choong Jon Lan (community medicine) Kuala Lumpur, Malaysia.

Professor J. Alpert (paediatrician) Boston, United States.

2.2 Nurses

(i) Participation in the "Introduction to the Field" programme on appointment as a school nurse.

(ii) Attendance at bimonthly meetings with invited speakers for metropolitan nurses. Minutes and tapes circulated to country staff.

(iii) Attendance at quarterly combined meetings in Perth for all metropolitan Community and Child Health nurses. Tapes circulated to country members.

(iv) Participation in the Annual Community Nurses Inservice Week in second term.

(v) Participation in twice yearly one day inservice programmes for school nurses in the South West.

(vi) Participation in annual regional inservice programme of 2½ days for country staff in Central, Eastern Goldfields, Pilbara and Kimberley Regions.

(vii) Attendance at scoliosis seminar conducted at Royal Perth Rehabilitation Hospital for those staff members who had not previously attended.

3.1 Number of Schools Visited 1983

(i) Government Schools:

Government Schools:	Metropolitan	Country	Total
Pre-schools	92	77	169
Primary and Pre-primary	282	246	528
Senior High Schools	49	25	74
High Schools	6	3	9
District High Schools	3	54	57
Special Aboriginal Schools	-	25	25
Special Schools	24	15	39

(ii) Non-Government Schools:

Non-Government Schools:	Metropolitan	Country	Total
Pre-schools	19	2	21
Primary and Pre-primary	82	52	134
Primary and Secondary	34	12	46
Secondary	25	12	37

3.2 Student Enrolment for 1983 as at 1st July

(i) Government Schools:

Government Schools:	
Pre-schools	7,615
Pre-primary	16,179
Primary	137,317
Secondary	71,406
Special Schools	1,785
	234,302

(ii) Non-Government Schools:

Non-Government Schools:	
Pre-schools	1,022
Pre-primary	1,946
Primary	29,427
Secondary	24,400
	56,795

(iii) Total number of students attending schools in Western Australia = 289,312.

4.1 Programmes

(i) 29,125 children had a full health appraisal in 1983. 67% (19,495) of these were for children attending pre-schools, pre-primaries and kindergartens.

(ii) Only 4,382 Year 1 children required a full health appraisal. Most children therefore receive their full examination and assessment prior to starting full time at school.

(iii) Children in school Years 2 to 7 who are new school entrants from overseas or from other states also have a full health appraisal.

(iv) 67% of all full health appraisals performed were for children attending schools in the metropolitan area.

TABLE SHOWING NUMBER OF FULL HEALTH APPRAISALS PERFORMED IN 1983

SCHOOL YEAR								
P/P	1	2	3	4	5	6	7	Total
19495	4382	1063	948	948	885	791	613	29125

4.2 Vision Screening

(i) 130,562 vision screening tests were performed during the year.

(ii) Nurses referred 2,600 students for further ophthalmological assessment for a suspected visual problem and 1,298 for suspected strabismus.

(iii) Medical officers referred 68 students for further medical opinion regarding vision and 60 children for assessment of strabismus.

(iv) The majority of children referred were in pre-primary classes, Years 1, 5 and 8; these are the years in which routine vision screening is undertaken.

(v) 63% of all vision referrals by school nurses were for children attending metropolitan schools.

TABLE SHOWING NUMBER OF PRIMARY AGED CHILDREN REFERRED BY NURSES FOR FURTHER VISION ASSESSMENT IN 1983

SCHOOL YEAR								
P/P	1	2	3	4	5	6	7	Total
396	416	211	170	155	276	166	137	1,927

TABLE SHOWING NUMBER OF SECONDARY AGED STUDENTS REFERRED BY NURSES FOR FURTHER VISION ASSESSMENT

SCHOOL YEAR					
8	9	10	11	12	Total
384	149	81	44	15	673

4.3 Hearing Screening

(i) 91,050 hearing tests were performed during the year.

(ii) Nurses referred 1,602 students for hearing problems and 371 for other E.N.T. concerns.

(iii) Medical officers referred 130 students for hearing problems and 84 for other E.N.T. concerns.

(iv) 58% of those referred were in pre-primary or the first two years of schooling.

(v) 50% of all referrals for hearing problems were for country children, indicating that the prevalence of hearing loss is greater for children living in rural and remote communities of the State.

(vi) Ear Health Team results confirm that the incidence of ear disease and hearing loss is considerably higher for children living in remote Aboriginal communities.

4.4 Scoliosis Screening

(i) This programme continued in schools in the metropolitan area, the south west and in the major country towns in the regions.

(ii) Nurses screened 10,746 girls in year six and 22,106 high school students (girls and boys) in year eight for spinal deformity.

(iii) Medical officers examined 1,346 year six girls and 3,929 year eight students referred by the nurses in this programme.

(iv) Those students referred for further specialist opinion included 134 from Year 6 and 307 from Year 8.

TABLE SHOWING ACTIVITIES IN THE SCOLIOSIS SCREENING

PROGRAMME FOR 1983

	Year 6 (females only)	Year 8 (males and females)
No. students screened by nurses	10,746	22,106
No. examined by medical officers	1,346	3,929
% referred to Community and Child Health Services Medical Officers	12.5%	18%
No. referred to specialist, G.P.	134	307
% referred by medical officer	10%	8%
% referred of totals screened	1.25%	1.4%

4.5 Health Education and Promotion

(i) 6,776 periods of health education were taken in schools by school nurses during the year. 3,217 (47%) of these were for children in primary and pre-primary classes and 3,559 (53%) for high school students.

(ii) The health education programme and curriculum in each school is arranged at the discretion of the principal and staff. In many schools nurses make a major contribution to the course and take classes of students for a variety of health related topics. Some nurses act as a resource for school teaching staff in this area.

(iii) Parents are invited to school to preview the lesson plans, films and slides which the nurses use in the growth and development, and in the human relationships and behavioural aspects of the programmes.

4.6 Home Visits

(i) 11,276 home visits were made during 1983 by nurses. 5,978 (53%) were to visit parents of primary and pre-primary children and 5,298 (47%) to homes of high school students.

(ii) Communication is also made with parents by card following the vision and hearing screening tests. If a child needs to be referred for further assessment the information is discussed with parents by letter, by phone or in person at school.

4.7 Immunisation

(i) The need to update children's immunisation states is an important aspect of health surveillance which is undertaken by school nurses and doctors.

(ii) In 1983 the parents of 3,573 primary and pre-primary children were notified that their child's immunisation needed to be completed.

(iii) The parents of 1,801 secondary aged students were reminded to update their child's immunisations.

4.8 High School Programme

(i) Most senior high schools in the State, metropolitan and country, have a school nurse appointed to the staff. The nurse works from a health centre within the school.

(ii) Students made 152,225 visits to consult the school nurse during the year.

(iii) Nurses in metropolitan high schools took 1,901 health education sessions in 1983.

(iv) 1,658 periods of health education were taken by nurses working in country high schools.

4.9 Priority Schools Programme

(i) Seven nurses provided health services to children attending priority schools and were based each at one of the following schools:

Balga Senior High School
Carawatha Primary School
East Fremantle Primary School
Highgate Primary School
Lockridge Primary School
Midland Primary School
Roebourne Primary School

(ii) Schools are designated to be in need of priority for educational and other services by the Education Department. Those schools included under the priority schools list are subject to change each year.

(iii) There is a large proportion of children from different ethnic families attending these schools.

(iv) Many health and social resources need to be available to nurses who are based in priority schools. Interpreters for Vietnamese, other Indo-Chinese and various European groups are utilised.

4.10 Special Schools Programmes

(i) Students attending the Koondoola and Willetton Special Schools for physically handicapped children continued to receive health services from members of a multidisciplinary team based at each school. The teams comprise nurses, doctors, occupational therapists, physiotherapists, speech therapist and social worker in addition to the Education Department staff of principal, teachers, teacher aides, physical education instructors and guidance officer.

(ii) A policy regarding pre-admission assessment of children was drawn up by School Health Services during the year and discussion on this document continued with senior officers of the Special Education Branch of the Western Australian Educational Department.

(iii) Each child at the school received management programmes where indicated after assessment. Occupational, physio and speech therapy were given in a variety of ways : individually, in groups, in the classroom, in withdrawal areas, in the pool, in school activity groups, or work experience or at school camps.

(iv) Counselling on several topics was given by the social workers to students, teachers and parents; and some regular group discussions were set up.

(v) Case conference and medical reviews were arranged as necessary for the 160 children enrolled at Koondoola and Willetton Special Schools.

(vi) School nurses visited other special schools throughout the State to do vision and hearing screening examinations. Other aspects of these children's health and medical services are provided by staff of the Mental Health Services through the Division for Intellectual Handicap.

(vii) School health services were provided for 73 children who attended the Chidley Education Centre. This school provides residential and educational facilities for country children who have specific learning disabilities.

Several children required special assessments and a total of 19 children were referred for further expert opinion and management.

(viii) Health services to students attending the special schools for hearing impaired children were given by nurses and one medical officer during the year.

(ix) Children with severe visual impairment who attended the Sutherland Special School were screened and assessed by a school nurse and a medical officer during the year.

4.11 Ear Health Programme

(i) During 1983 the ear health team continued to visit remote areas of the State where the prevalence of ear disease and hearing loss in Aboriginal children was high.

(ii) The following towns were visited: Cundeelee, Meekatharra, Wiluna, Jigalong, Roebourne, Yandeeyarra, Halls Creek and Fitzroy Crossing.

In some communities the entire child population under 12 years of age were examined. At other centres children were seen on a referral basis.

(iii) The aims of the ear health programme are to reduce the effects of ear disease and hearing loss in Aboriginal children by:

- identifying those children with chronic middle ear disease and those with hearing loss.
- consulting with local staff regarding management.
- liaising with Education Department staff for appropriate management of those children with hearing loss.
- referring children for a specialist E.N.T. opinion when indicated.

(iv) In Roebourne the programme of suction ear toilets using a microscope instead of ear washouts continued until August. Review at this time showed no significant change in the status of the children's ears.

(v) The prevalence of children's ear disease and hearing loss remains unacceptably high in several remote communities. Early identification of young children with ear disease and regular surveillance continued to be important activities of field staff. In addition, aspects to promote good health such as nutrition, hygiene, clean water supply, adequate housing were all areas in which staff were heavily involved.

(vi) Results of ear health team prevalence studies in previous years have shown a number of centres where children have a constant hearing loss of educational significance. As a result of this the F.M. Amplification project was started at Jigalong at the end of 1982. During 1983 this project continued at Jigalong and was extended to Fitzroy Crossing and Halls Creek.

(vii) Following each visit by the ear health team several children were referred to the visiting E.N.T. specialists for further opinion and treatment. Close consultation with specialists is essential in providing a team approach for management of children with ear disease. Referral criteria were obtained from each specialist and where possible individual referrals discussed in detail.

5. OTHER SPECIAL ACTIVITIES DURING THE YEAR

5.1 Report From Senior Audiologist

(i) Growth was maintained in the audiological unit during 1983. Major activities were in areas of clinical services, ear health team, staff education and purchase of equipment.

(ii) 321 assessments were conducted at Rheola Street; 192 of these were initial referrals and 129 were reviews.

(iii) 7 children were referred to the National Acoustic Laboratory in Perth and subsequently fitted with hearing aids.

(iv) 7 visits were made to country centres for follow-up with ear health team, E.N.T. support in the Kimberley and continuation of the F.M. Amplification programme in the Pilbara and Kimberley Regions.

(v) 13 staff education sessions were conducted during the year in addition to one study on impedance audiometry in conjunction with the medical officers' inservice course.

5.2 Children with Severe Visual Impairment

School nurses and doctors continued to identify those children with severe visual impairment during the year. By liaison with the Special Education Branch the educational needs of these children were met in country as well as in metropolitan schools.

5.3 Lectures Given by Staff

(i) School health staff participated in five "Introduction to the Field" programmes for nurses joining Community and Child Health Services.

(ii) Inservice programmes throughout the year involved several child health medical officers, therapists and nurses in metropolitan and country centres.

(iii) Participation in community nurses' annual inservice programme.

(iv) Lectures and discussion groups were organised throughout the year to groups of school children, teachers, teachers in training, guidance officers, parent and citizen associations, expectant parent groups, students at Western Australian Institute of Technology, child health nurses at Ngala mothercraft home, community nursing students, trainee nurses and medical students.

6. CONDITIONS IDENTIFIED DURING SCHOOL HEALTH APPRAISALS. INFECTIONS AND INFESTATIONS OF SKIN AND HAIR

6.1 Pediculosis

(i) 9,161 children were found to have pediculosis at the time of school medical assessments.

Most of these (94%) were children of primary school age.

(ii) 4,416 (48%) of the total were children with pediculosis attending country schools.

(iii) There was little change overall in Western Australia in the prevalence of this infestation, however 1,015 more metropolitan children came to the attention of school health staff for this problem compared to 1982.

6.2 Scabies

(i) 341 children were found to have scabies at the time of assessment in school.

(ii) 236 (69%) were children in primary and pre-primary classes.

(iii) During 1983, 199 fewer children with scabies (reduction of 37%) came to the attention of school health staff.

6.3 Impetigo

(i) 545 children were identified to have impetigo and of these 444 (81%) were attending primary or pre-primary schools.

(ii) The incidence was greater for children attending country schools who comprised 347 (64%) of the total.

(iii) There was a slight overall reduction of 6% compared with 1982 data.

6.4 Ringworm

(i) 283 children were found to have ringworm at the time of school health appraisals.

(ii) 177 (62%) were of primary and pre-primary ages.

(iii) The incidence of ringworm for metropolitan and country students showed little difference at 52% and 48% respectively.

7. OUTCOME OF REFERRALS

CLASSIFICATION OF CONFIRMED DISABILITIES AND HANDICAPS

BY SYSTEMS 1983

Ophthalmologists' Assessments

Refractive errors	1,653
Infections	50
Trachoma	241
Strabismus	219
Amblyopia	78
Other	91
TOTAL POSITIVE FINDINGS	2,332
Spectacles prescribed	1,179
Surgery	32

Hearing Assessments

Sensorineural hearing loss	143
Serous otitis media (glue ear)	359
Dry perforation	94
Perforation with discharge	119
Foreign bodies	34
Otitis externa	59
Transient hearing loss	244
Wax	117
Acute otitis media	115
Other	53
TOTAL POSITIVE FINDINGS	1,337
Hearing aids supplied	13
Surgery	199

Cardiovascular System

Congenital heart disease	14
Rheumatic heart disease	5
Other	12
TOTAL POSITIVE FINDINGS	31

Musculoskeletal System

Muscular dystrophy	4
Scoliosis under review	438
Scoliosis requiring treatment	39
Feet (pes planus etc.)	16
Perthes disease, 'Irritable' hip	4
Genu valgum	3
Fractures and trauma	291
Other	50
TOTAL POSITIVE FINDINGS	845

Skin Disorders

Skin Disorders	70

Disorders of Growth and Nutrition

Underweight	17
Obesity	77
Growth retardation	21
Malabsorption	1
Anaemia	124
Thyrotoxicosis	-
Hypothyroidism	1
Diabetes	3
Other	13
TOTAL POSITIVE FINDINGS	257

Genito-Urinary System

Bilateral undescended testes	9
Unilateral undescended testes	37
Hydrocoele	22
Inguinal hernia	8
Enuresis	42
Other	20
TOTAL POSITIVE FINDINGS	138

Central Nervous System

Cerebral palsy	2
Epilepsy	14
Migraine and recurrent headache	31
Other	11
TOTAL POSITIVE FINDINGS	58

Psycho-social and Developmental Disorders

Speech disorders	749
Developmental delay	132
Behaviour problems (referred to other agencies)	72
Behaviour problems (managed within the service)	74
Learning difficulties	44
Mental retardation	4
Encopresis	25
Other	27
TOTAL POSITIVE FINDINGS	1,127

TOTAL NUMBER OF DISABILITIES AND HANDICAPS 6,195

YOUTH HEALTH SERVICE

Dr. S.I. Robertson reports -

Planning for the unit had proceeded during 1982, but it was not until early 1983 that any staff were appointed. The present staff consist of a medical officer, a field nurse, a social worker and a secretary-receptionist. A psychiatrist and an obstetrician-gynaecologist are available on a consultant basis.

Premises for the unit are located in Cook Street, West Perth, in close proximity to Community and Child Health Services' office, Princess Margaret Hospital and the Child Development Centre. The two semi-detached units which have been merged by an interconnecting door are adequate for the unit's present needs and were made available by Princess Margaret Hospital. The new service commenced operations in early June.

The objectives of the unit are:-

(i) To develop and co-ordinate the Public Health Department's youth health activities.

(ii) To provide a resource centre in the metropolitan area for the ambulatory health care of youth.

(iii) To study and conduct research into adolescent health problems.

(iv) In conjunction with other education units to provide training for medical officers, youth workers and allied health professionals.

(v) The medical officer is to provide a consultant role to Princess Margaret Hospital with regard to adolescent patients and services.

The unit is still in its formative stages, but during 1983 embarked on several activities. Initially, there was a series of introductory engagements with departmental, other government and non-government individuals and agencies working with youth. Numerous presentations on the work and objectives of the service have been given by staff members.

Already several projects have been commenced including:-

- A Community Youth Worker Training Program

  This was organised by an executive made up of workers from several agenices. As N. James was one of these, a health component was included in the 10 week course. Three lecture discussions were held weekly. The course aimed at increasing the knowledge and skills of volunteers and youth workers attached to organisations included in the welfare of young people. Approximately 20 attended.

- University of Western Australia Extension Course Entitled "Parent Survival and the Teenage Experience".

  Twenty parents enrolled in this 6 session course. Each session took the form of discussion on a topic introduced by one or more resource people with practical experience in an aspect of teenage behaviour.

- Community Youth Work Development

  General practitioners in one local shire contacted the unit with regard to developing a program to meet the health needs of their young people. The unit's contribution consisted of advice, support, and initial participation in involving shire personnel, school and community health staff and others who were interested. After a period of 9 months many relevant issues have been discussed and the group has gathered its own momentum. Now under the name of a youth health support scheme funding is being sought for employment of a youth worker, first to undertake appropriate research and then to become involved in youth work in the community. Community youth work development and youth worker support are seen by the unit as being effective means of promoting youth health and preventing youth health problems.

- Health Education - has been undertaken, principally by the unit's field nurse, and mostly through group discussions at a variety of hostels, refuges, Community Youth Support Scheme (C.Y.S.S.), and Technical And Further Education (T.A.F.E.) programmes.

Resource, Educative and Advisory Role

This role is the constant theme of the projects previously outlined and also of the unit's day-to-day activities in many other ways. Telephone calls and visits, both of personnel involved in caring for the health of young people, and of staff to agencies and individuals, as well as by course work and more formal presentations are the means by which this role is fulfilled.

- Client Care. Eighty young people were seen for assessment and management. They were referred by general practitioners, school health personnel, Princess Margaret Hospital staff, youth workers, and a variety of others who work with youth.

Most such young people had multiple problems, were in complicated living situation and were demanding of time and skills.

Other Activities Undertaken Included:-

- Submissions on the proposed Youth Affairs Bureau (August), The Select Committee on alcohol and other drugs (September), and the Welfare and Community Services Review (November).
- Papers delivered by S. Robertson at The Australian College of Paediatrics meeting in May ("The Transfer of Adolescent Patients from Paediatric to Adult Physicians"), and The National Conference of The Australian Association of Adolescent Health. ("International Youth Year")

  Papers were also presented at the parents of diabetics seminar (Princess Margaret Hospital), The Western Pacific Cerebral Palsy Association Conference, The Country Women's Association Conference and The Association for the Welfare of Children in Hospital Conference.
- The nurse and social worker have been involved in a range of educational activities with social work students, nursing staff, C.Y.S.S., and TAFE programs, a variety of voluntary agencies and the Perth Inner City Youth Service courses for volunteer youth workers.

These activities all reflect the unit's commitment to the health and well-being of young people in today's society. It believes in meeting their needs within the community, especially through working with those who work with youth.

EPIDEMIOLOGY & SPECIAL SERVICES

Dr. R. Allen reports -

IMMUNISATION

A total of 50,849 injections were administered by the section during 1983. This is the highest number on record and represents an increase of 13.9% over 1982.

Most of this increase was due to the introduction of a combined measles/mumps vaccine which became available in January and was in heavy demand throughout the year.

Rubella vaccinations among Year 8 schoolgirls showed a further increase in the acceptance rate to a record 88.3% and this continuing increase is demonstrated by the figures from recent years:-

Year	Acceptance Rate
1976	78.0%
1977	78.5%
1978	82.0%
1979	82.1%
1980	82.8%
1981	83.3%
1982	85.6%
1983	88.3%

The following immunisations were carried out during 1983:-

Sabin Vaccine		44,232
Triple Antigen	13,978	
C.D.T.	9,786	
A.D.T.	1,564	
Tetanus Toxoid	1,799	
Measles	479	
Measles/Mumps	12,938	
Rubella	10,223	
Miscellaneous	82	
TOTAL INJECTIONS	50,849	50,849
TOTAL TREATMENTS		95,081

MALARIA

Notified cases of malaria increased to 34 during the year (20 in 1982). Of these, half originated from Papua New Guinea.

Details of these cases are as follows:-

Country of Origin	Species		
Papua New Guinea	Pl. vivax	14	
	Pl. falciparum + vivax	3	17
South East Asia	Pl. vivax		5
India	Pl. vivax		4
Indonesia (Bali)	Pl. vivax		3
Vietnam via Indonesia	Pl. vivax		3
Zambia	Pl. vivax		1
Sri Lanka	Pl. vivax		1
			34

Pl. vivax	31
Pl. falciparum + vivax	3
	34

ETHNIC LIAISON SECTION

Mrs. S. Hopkins reports -

Projects currently being undertaken by the Ethnic Liaison Section include:-

Information

(i) Advising Community, Child and School Health nurses and Child Development Centre staff on cultural factors affecting health care delivery.

(ii) Contributing to orientation programmes, and occasional talks on cultural factors relevant to health care delivery.

(iii) Gathering information on the above factors through literature searches and personal contacts.

(iv) Writing and editing a resource book on culture and health for Community and Child Health Services staff.

Liaison

(i) Keeping in touch with ethnic communities through personal contacts, ethnic welfare workers and ethnic associations.

(ii) Maintaining links with relevant tertiary institutions, and State and Commonwealth Government Departments.

Translated Materials

(i) Supervising the translation, checking, typing and art work of ethnic language leaflets, pamphlets and forms on health produced for Community and Child Health Services.

(ii) Collection of supplementary materials from other agencies.

(iii) Supply of the above to Community and Child Health staff and related agencies.

Outreach

(i) Supervision of co-ordinators of three migrant women's groups (Portuguese, Italian, Yugoslav).

(ii) Organising placement of health education materials in ethnic community languages in locations visited by many migrants and refugees, such as certain general practitioners' surgeries, ethnic association meeting places, migrant resource centres, some factory work places.

(iii) Attendance at meetings and consultation with community contacts in the general area of migrant welfare and health.

Reports/Enquiries

(i) Participation in inter-departmental State Government inquiry into interpreting and translating needs (ongoing).

(ii) Contribution to Departmental submission to the Committee of Review of Special Broadcasting Service (ongoing).

OCCUPATIONAL THERAPY

Mrs. J.L. Lynn reports -

Occupational therapy staff are employed at the Child Development Centre, Willetton and Koondoola Special Schools and on a part-time basis at the Midland Community and Child Health Unit.

Individual therapy programmes have proved to be the most effective use of expertise and time at the Child Development Centre. Children with motor and perceptual problems respond most effectively on a one-to-one basis. This does however restrict the number of children seen and causes an increasing waiting list.

Pre-school children following assessment may be programmed on a group basis, often in conjunction with the speech pathologist, physiotherapist and social worker.

An occupational therapist is based full-time at both Willetton and Koondoola Special Schools. Nine Treatment sessions are time-tabled into the school day, and children are treated individually or in classroom groups in conjunction with the teacher. Outpatients, referred from the Child Development Centre are assessed and treated after school hours.

Occupational therapists in the special schools also manage out of school and holiday activity groups, plan and maintain special equipment and organise work experience and pre-vocational training.

All occupational therapy staff meet on a monthly basis. This provides both a supportive and educational need. They also attend regular paediatric interest group meetings and are involved in further education with seminars and workshops organised by W.A.I.T. Department of Therapy.

NUTRITION AND DIETETIC SERVICES

Ms. L. Boulden reports -

Nutrition and dietetic services continued to be in great demand throughout 1983. Requests came from a wide variety of sources within the Public Health Department, from other government agencies and the general public. This reflects the situation in Western Australia where so few dietitians are employed outside the major teaching hospitals. It is also an indication of the increased recognition of the important role of food and diet for general health and well being.

One notable increase in concern was regarding how to feed a family on a low income or social security benefits. Requests for practical programmes addressing this problem came from our own staff, C.Y.S.S. groups and day care centres under the auspices of Community Welfare.

The senior dietitian has worked with the Health Education Unit on a number of projects relating to nutrition, including the School Canteen Seminar Programme. The evaluation of this programme is encouraging, showing an increase in the number of nutritionally desirable foods and a decrease in the number of undesirable foods for sale in the canteens after the seminars. The programme would seem to be an efficient way to provide information and support to school canteens and there has been a definite drop in requests from parents and schools for assistance in improving the canteens.

There has been close liaison between the senior dietitian and the Staff Development Unit in the provision of the nutrition component of the "Introduction to the Field", and health worker conferences and workshops. In relation to the latter an effort has been made to improve the availability of education resources suitable for use in Aboriginal communities. Of particular concern has been the need for materials which address the problem of the high incidence of diabetes mellitus in Aboriginal communities. Initial moves have been made to involve the Aboriginal Health Liaison Committees in monitoring the foods available in the stores. Meetings continue to be held with the Department of Aboriginal Affairs and other concerned agencies regarding how to improve the standard of management of stores serving Aboriginal communities.

Throughout 1983 there were regular requests from Mental Health Services for dietetic assistance. These were not able to be met and it resulted in the senior dietitian preparing a report on The Need for Dietetic Services within Mental Health Services and the Division of the Intellectually Handicapped.

NUTRITION AND DIETETIC SERVICES IN COMMUNITY HEALTH PROGRAMMES 1983

The statistics for the provision of nutrition and diet therapy services through Community Health Programmes are shown below.

Location	Employment Time	New Clients	Clients for Review	Clients seen in Group Sessions
Geraldton	full time	341	1304	857
Mandurah	3 sessions/week	206	449	90
Busselton	3 sessions/month	57	149	90
Margaret River	1 session/month	12	46	30
Augusta	1 session/month	8	39	

The figures for sessional services provided are very similar to those for 1982. This reflects the demand for clinical dietetic services outside the metropolitan area and that there is a limit to the number of clients who can be counselled in a set period of time. The demand for dietetic services is increasing which is indicated by longer waiting lists for appointments.

At Geraldton, where the dietitian is employed full time, an attempt has been made to extend the provision of services more widely and also to become involved in health promotion activities. Diabetic clinics have been conducted on a regular basis at Northampton, Mullewa and general clinics at Dongara and Kalbarri. Antenatal education classes have been conducted at Geraldton Regional Hospital and the dietitian participates in the Community Welfare Homemakers Group.

The fact that a dietitian is located at Geraldton facilitated the organisation of the school canteen seminars in the area. The dietitian provided the nutrition component of the seminars which were conducted at Geraldton, Dongara, Northampton and Mullewa.

It is recognised that the provision of dietetic services throughout the State is inadequate and that the demands for service cannot be met by the two full-time and two sessional staff members. Thus attention is being focused on how to identify priorities, how to improve organisation of work time, and how to encourage staff to use the dietitians as resource personnel. The Staff Development Unit organised a most useful inservice week in December, 1983 addressing these issues and it is hoped that this will assist staff in coping with their work demands efficiently in 1984.

In addition to being available as a nutrition resource person to Public Health staff, and administrative responsibilities, the senior dietitian has regular lecturing commitments. Child health trainees, mothercraft nurses, W.A.S.N. nurses, W.A.I.T. nurses enrolled in the child health option received lectures on paediatric nutrition. W.A.I.T. nurses and W.A.I.T. Nutrition Degree students received lectures on community nutrition and the particular problems of Aboriginal clients.

PHYSIOTHERAPY

Mrs. M. Norman reports -

Physiotherapy services are provided at the Child Development Centre, the Parenthood Unit and Willetton and Koondoola Special Schools.

Child Development Centre

There has been a steady increase in all areas of physiotherapy services provided. Comparative figures for 1982 and 1983 are shown in Table 1.

TABLE 1

	Physiotherapy	Child Development Centre
	1982	1983
New cases	146	186
Ongoing treatment	415	437
Number of groups	148	155
Lectures/Demonstrations	2	30

The increase in new cases has come about because of earlier referral of low birth weight babies and the increased use of physiotherapy services by child health nurses. The increase in lectures and demonstrations reflects the ongoing interest by professionals and the general public in the techniques of baby massage.

Two 3-day visits were made to the Pilbara during 1983 and one visit to Albany. The purpose of these visits was to provide support and assistance to local physiotherapy staff regarding the use of physiotherapy in developmental paediatrics.

Visits are also made to Ngala where babies and children with developmental delay are assessed and the nursing staff taught the remedial techniques required.

Parenthood Section

During 1983, existing programmes have been running at full capacity and some new programmes have been initiated.

The preparation for birth classes attracted a total of 3,186 expectant parents. In addition, a staff physiotherapist addressed the introductory evening for early pregnancy held once a month.

Post-natal classes attracted a total of 2,110 women and babies. These classes are very busy, and there is a need for extra classes so that proper attention can be given to each person in the class.

During the year antenatal keep fit classes have been started. These are very popular and provide opportunities for health education and preventive health care.

Staff have also been involved in programmes outside the unit. These include work for youth health and pregnancy help with single pregnant girls, talking to groups of mothers at the request of the child health sisters, holding a weekly keep fit class for over-60's in Subiaco, and serving on a joint R.A.N.F./A.P.A. Committee to improve the standards of antenatal education.

Telephone enquiries and individual appointments from the country have increased both from expectant parents, and other professionals. Cassettes and leaflets continue to be prepared, revised and sent to the country or handed out to callers at the Centre.

Willetton and Koondoola Special Schools

There are just over 80 pupils at each school and 75% of the children are involved in some form of physiotherapy programme.

Therapy is provided on an individual and group basis. The groups include Halliwick swimming, gross motor skills, sensori-motor problems, body awareness, hemiplegics and posture and fitness groups. Outpatient therapy is provided for children with problems who attend regular schools.

SOCIAL WORK SERVICES

Mrs. M. Donovan reports -

1983 has been a stable year in terms of staff turnover, with the only resignation and replacement occurring at Willetton Special School. There were a total of 274 new referrals at the Child Development Centre, a significant increase. Southwell with 66 and Queens Park with 64, both show increases over 1982. The number of new cases at Koondoola Child Health Services Centre remained almost the same, at 97. However, this workload is far too heavy for a part-time person and quality of service has only been maintained at the expense of the social worker's own time.

Social workers at all centres ran groups, including support groups for parents of intellectually handicapped children, various parenting skill groups for parents experiencing difficulty in coping with their children's behaviour, groups for children including a group.for 10-12 year-old children with low self esteem.

This has been the first full year with a half time social work service at Koondoola and Willetton Special Schools. The role is developing well, with the service being valued by health and educational staff, students and parents. The role has included support and consultation for staff; case work and group work with families; individual counselling, group work and camps with students.

The demand for social work services at the Child Development Centre and Child Health Services Centres continues to increase and is always far beyond the capacity of existing staff. Priorities are frequently re-assessed and criteria continually narrowed. Highest priorities are given to meeting the needs of the clients of the multidisciplinary teams at each of the Centres, and providing a social work support service to Community and Child Health Services branch nursing and medical staff.

In an attempt to keep numbers manageable, cases are referred to other agencies whenever possible, even though it would often be more appropriate for the total management to remain within the team. In some cases a referral from a field staff member is not accepted and instead a consultative support service is offered while the case continues to be managed in the field. A telephone consultative service is maintained at each of the Centres, and this aspect of the work is continually growing. Involvement in the inservice education of branch staff has also had to be strictly limited.

The necessity to maintain existing services has meant ignoring many areas of obvious need, where new services should be developing.

If nurses, medical officers and para-medical staff in Community and Child Health Services are to provide an effective service to the community they must have access to properly integrated social work services within their own service. It is hoped that 1984 will see constructive planning towards meeting these areas of need.

SPEECH THERAPY SERVICES, 1983

Ms. J. Britten reports speech therapists in Community and Child Health Services function as members of different teams. Clinicians continue to offer a wide variety of management approaches to children from 16 months to 12 years of age. Clinicians (except in Children's Day Care Team) assess and manage all age groups but there has been an increase in the number of referrals in the under 4 age group reflecting paediatricians and child health nurses earlier identification of cases and confidence in the service that speech therapists can offer.

Following diagnostic assessment, children are managed on home, school or day care programmes; individual or small group therapy with either child or parent focus; or are tracked on a review basis. The type of management offered to a child and his family will from time-to-time alter and clinicians regulate the most appropriate form of management possible, given the restraints of time and case loads. An integral part of any clinicians' role is interacting with other team members, and home, school or day care visits, for both diagnostic and therapeutic purposes. An essential role of all clinicians is assisting the significant people in the child's environment to deal with the presenting communication disorder and its management.

This year clinicians have been utilising child health centres for clinics and at Koondoola have been working more within schools and pre-primary centres. There is a massive demand in all areas for direct service to schools but there are insufficient clinicians to act as consultants.

Facilities at the Koondoola Child Health Services Centre and at Rheola Street limit the amount of group work possible, but clinicians in all centres continue to provide groups when appropriate, eg. articulation programmes, syntactical development, swallowing retraining, parents "motherese" skills, classroom teachers evaluation schedule.

Clinicians at the two special schools have had to modify their programmes with the changing natures of the schools. They continue to work closely with teachers and the health professionals based at the school. They have close contact with clinicians in the Division for the Intellectually Handicapped and the Spastic Centre and ran joint programmes for teachers in special schools on a language evaluation technique (S.A.L.C.A.). The use of the Amer-Ind Signing System has continued and both clinicians introduce non-verbal aids where appropriate. There has been an increase in the number of severely handicapped children with no concomitant increase in staff.

Despite a small increase in the number of clinical facilities, particularly from Hospital and Allied Services, case loads continue to be far too high for each individual clinician. On December 31, 1983 Community and Child Health Services speech therapists, excluding the special schools clinicians, were providing a service for 1,116 children and their families. On that same date 309 children were awaiting assessment.

Educational Responsibilities

(i) As part of resource teams, all speech therapists participated in a series of workshops organised throughout the metropolitan area. Focus was on:

  (a) increasing the nurses understanding of the relationship between play and language development and use;

  (b) helping nurses to answer questions commonly asked by parents;

  (c) verification of the value of referral information;

  (d) provision of sets of resource leaflets.

(ii) Regular input to Ngala programmes both child health and mothercraft, school and community health orientation programmes, child care certificate course, parent/teacher and guidance officer groups continued.

(iii) Staff speech therapists excluding new graduates have been responsible for the clinical education of a student from the Speech and Hearing Programme at W.A.I.T. Our centres and schools provide the added experience of clinicians working in a team, early assessment and intervention and some of the concepts of the preventative model.

The speech therapist from the Children's Day Care Health Team continued to act as consultant for the play at home programme. She initiated a series of workshops for day care staff. Due to the work involved, 4 series of workshops (rather than 8 planned) were completed. These sessions were so well received that family care staff also requested programmes and 3 workshops were provided. The major focus of these workshops was to improve the knowledge and increase the application of information regarding children's speech and language development.

Ms. J. Meares attended the annual conference of the Australian Association of Speech and Hearing in Sydney in February, on Language Disabilities in the Learning Disordered.

Ms. S. Mandy presented a paper on Phonological Analysis at a W.A.I.T./A.A.S.H. ongoing Education Seminar.

Ms. M. Brown presented papers at the Special Education Conference on Evaluation of Language Skills in the classroom and at A.A.S.H./W.A.I.T. Continuing Education Seminar on the Learning Disabled Child - a Case Study. Ms. J. Britten ran a workshop on Toddlers Assessment for an A.A.S.H./W.A.I.T. refresher course.

1983 was a busy year with a full staff complement. Discouragement of excessive case loads of complex children is offset by close professional liaison and support by clinicians working in similar settings.

Appendix IV

COMMUNITY HEALTH PROGRAMME

SENIOR STAFF

Deputy Commissioner of Public Health : Dr. L.J. Holman
Principal Physiotherapist : Mrs. L.C. Diamond
Social Work Supervisor : Mr. F.C. Parker
Senior Chiropodist : Mr. L.C. Foley
Asst. Administrative Officer : Mr. A.R. Boreham

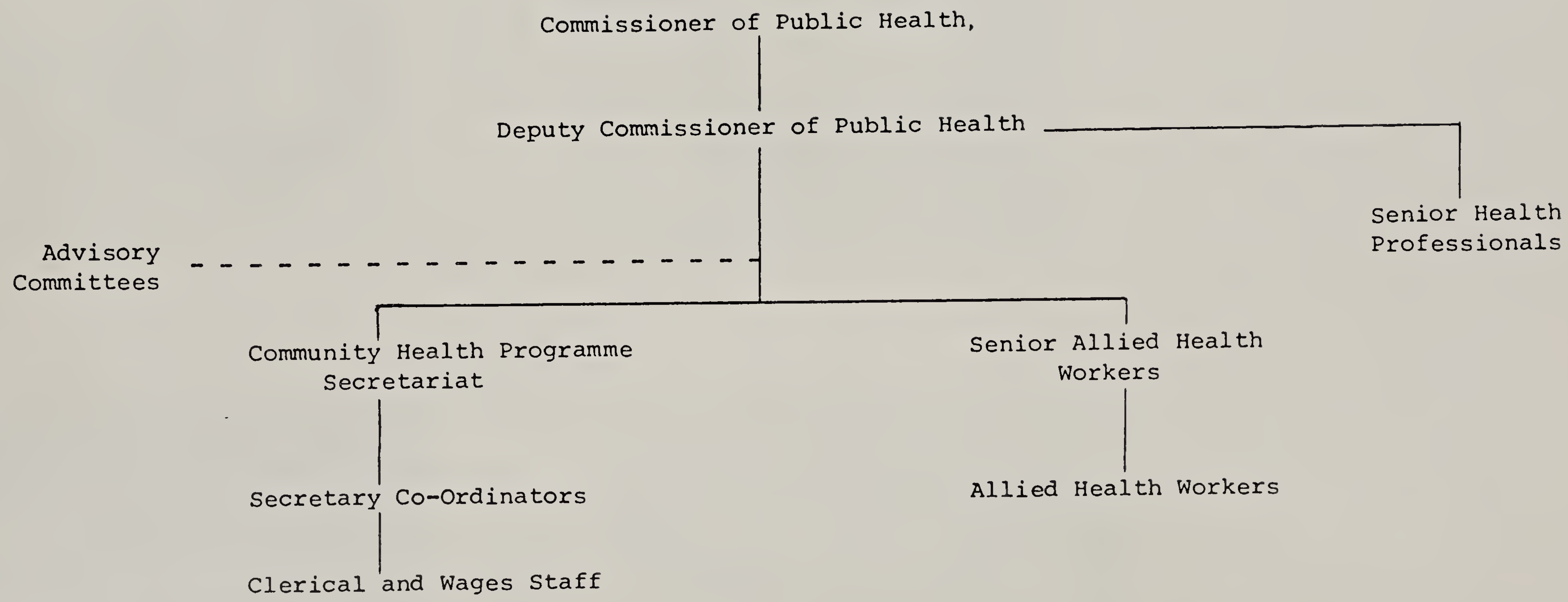
L.J. Holman
J.P., M.B.B.S., F.R.C.S.E., D.P.H., F.A.C.M.A.
Deputy Commissioner of Public Health

Mrs. C. Diamond
Dip.Phys.
Principal Physiotherapist

F.C. Parker
B.Ap.Sc., Dip.Soc.Stud.
Social Work Supervisor

L.C. Foley
Dip.Ch.
Senior Chiropodist

COMMUNITY HEALTH PROGRAMME -ORGANIZATION CHART


Commissioner of Public Health,
Deputy Commissioner of Public Health
Senior Health Professionals
Advisory Committees
Community Health Programme Secretariat
Secretary Co-Ordinators
Clerical and Wages Staff
Senior Allied Health Workers
Allied Health Workers

COMMUNITY HEALTH PROGRAMME

FINANCE

The total State allocation in 1983/84 for all programmes administered through the secretariat was $8,271,359. The distribution between the three main areas of activity was:-

General	$6,298,159
Senior Citizens Services	961,200
Women's Refuge Programme	$1,012,000

This level of funding enabled existing projects to be maintained at a satisfactory level and also enable some small but significant developments particularly within the Women's Refuge Programme and Senior Citizens Services.

In addition to this funding, it was also announced that the Commonwealth Government would be making funds available through the Women's Emergency Services Programme (for Women's Refuges) notionally $350,000 and the Medicare Agreement (Community Health Services Programme) $600,000 in 1983/84, $1.59m in 1984/85 and a similar amount in 1985/86.

NEW INITIATIVES

Details of the Women's Emergency Services Programme will not be available until 1984 and no further planning is possible until then.

In respect to the Medicare allocation which will be effective from 1/2/84, detailed planning placed a considerable strain on existing staff as the secretariat, in particular, had been allowed to contract to a maintenance level. Nevertheless, as usual all staff rose to the task to develop an effective strategy as follows.

1. New Community Health and Development Centres at Withers (Bunbury) and Armadale.
2. Mobile Day Services team to service 2 centres in the northern corridor.
3. Additions to Kwinana Community Health Centre to provide a day services facility.
4. Expansion of the central resources pool to provide additional allied health staff.

5. Assistance for the Encounter Records Programme.

6. Development of Pinjarra satellite to Mandurah Community Health and Development Centre.

7. Computerised immunisation record project.

8. Community fitness programme.

The final determination of projects will ultimately depend upon the funding arrangements negotiated under the Medicare Agreement.

SENIOR CITIZENS SERVICES

Two new Senior Citizens Centres, at Rockingham and Melville were approved for part funding during the year, together with additions at Swan and Stirling. Funding for these projects is provided through the States Grants (Home Care) Act. Under the terms of the Act the Commonwealth provides two thirds of the capital cost, the balance being provided by the State Government and Local Authority.

WOMEN'S REFUGE PROGRAMME

Currently 18 Women's Refuges are approved for State funding, including 3 new initiatives this year. They are:-

W81 Wyn Carr House - $24,000 - allocation for 9 months
W83 Anawim - $40,000 -
W84 Armadale/Gosnells - $35,000 - allocation for 6 months

Funding to existing refuges for this financial year was increased by the 8% inflation rate with no provision for capital or increase in staff levels.

Several refuges are critical of the level of funding to Women's Refuges despite the increases over the past few years which clearly demonstrates the support for Women's Refuges -

1980/81	$527,000	
1981/82	$711,000	(includes $70,000 for new projects)
1982/83	$863,000	
1983/84	$1,012,000	(includes $99,000 for new projects)

These refuges maintain that the increases are inadequate and have accused the Department of demonstrating a lack of sympathy to women in crisis and of viewing refuges as a low priority. However, it is interesting to note that Western Australia's funding levels compares favourably with other States and Territories.

State or Territory	No. of Refuges	Number of Approved Staff	1983/84 Total Allocation $
A.C.T.	2	Not Specified	166,000
N.S.W.	40	154	3,505,000
Victoria	17	51	1,747,000
Queensland	23	51	1,045,000*
South Australia	11	37	1,005,000
Tasmania	8	Not Specified	480,000
Northern Territory	2	Not Specified	210,650
Western Australia	18	80.2	1,012,000

*Queensland total allocation includes funding for 2 Rape Crisis Centres.

Most refuges report that due to the economic climate the length of stay within refuges has increased thereby reducing the number of women and children who can be accommodated. One of the reasons for this is the difficulty in obtaining cheaper rental accommodation.

COMMUNITY DAY SERVICES PROGRAMME

The objective of Community Day Centres is to maintain the health and independence and improve the quality of life of adults with special needs. The availability of this service also provides some relief for families caring for dependent adults. Clients are mainly frail aged or disabled people living in their own homes, who have a physical, social or emotional problem which prevents them from participating in other social activities. Approximately 30 existing centres have been identified in the community. New day services have been developed at Manning and Bayswater.

The day service at Belmont although existing for 7 years prior, required complete re-organization when the Assembly of God Church withdrew its support.

New day services are proposed in Subiaco, Midland, The Greek Community, City of Perth and The League of Home Help.

ALLIED HEALTH PROFESSIONALS

Attached are reports on activities relating to physiotherapy services (1), social work (2) and chiropody services (3).

PHYSIOTHERAPY REPORT

1983 has been an interesting year for physiotherapy with the consolidation of some programmes and the development of some new ideas.

CHILD DEVELOPMENT CENTRE

There has been a steady increase in all areas of physiotherapy services provided by the Child Development Centre. Comparative figures for January to December 1982 and 1983 are as follows:

		1982	1983
New cases referred	:	146	186
Ongoing treatment	:	415	437
Children seen outside the Child Development Centre	:	102	110
Groups run	:	148	155
Lectures/Demonstrations given	:	2	30

The staff consists of one level, 2 full-time physiotherapists and one sessional physiotherapist providing 4 sessions per week.

The dramatic increase in lectures and demonstrations requested reflects the ongoing increase and the technique of baby massage as expressed by other professionals as well as the general public.

The increase in new cases has come about because of earlier referral of low birth weight babies and the increased use of physiotherapy services by the child health nurses.

Country Visits

Two 3 day visits were made to the Pilbara during 1983 and one brief visit was made to Albany. The purpose was support and assistance of the physiotherapy staff in the paediatric area.

Visits have been requested from the medical officer, Dr. Denner to Meekatharra and Wiluna, but these have not yet been possible due to lack of travel finance.

Other Services

1. Willetton and Koondoola special schools.

   Supervision is provided for the 5 physiotherapists at these facilities.

2. Parenthood section of Community and Child Health Services.

   Supervision is provided for the physiotherapists working in the ante and post-natal areas, and regular baby massage demonstrations are provided for the mothers.

3. Ngala.

   Developmentally delayed babies and children are visited and assessed by the Child Development Centre physiotherapist and the nursing staff are taught the remedial techniques required.

4. W.A. School for the deaf.

   A service has been requested for several physically disabled children, but has not been provided due to insufficient physiotherapy staff.

Problems Currently Experienced

1. The very small physiotherapy staff makes meeting increased demands for physiotherapy services extremely difficult.

2. The nature of the Child Development Centre referrals precludes the establishment of a waiting list. Thus treatment sessions are now of necessity shorter and selection of cases accepted for treatment has had to become more stringent.

Proposed Activities

Quality case assurance is currently under discussion and a system of peer review is to be introduced in the second half of 1984 for the physiotherapy staff in Community and Child Health Services. It is to be supervised by the senior physiotherapist from the Child Development Centre.

KOONDOOLA SPECIAL SCHOOL

At present there are 80 children attending the school, an increase of 6 from 1983. This class caters for multiple handicapped children. The addition has caused great stress on the therapy service at Koondoola. A working party to look at the special needs of handicapped children was convened by the Minister during the last quarter of 1983. It is hoped that increased therapy services will be available in future.

The children can be categorised in the following:-

Severely physically disabled children	22
Moderately physically disabled children	29
Mildly physically disabled children	29

Listed below are the units times for the past twelve months (one unit is equal to fifteen minutes) for treatment given to students of Koondoola Special School.

May 1983	945	
June	539	
July	512	
August	421	
September	440	
October	608	
November	694	
December	134	
January 1984	361	(one physiotherapist)
March	669	(one physio. and a part-time)
April	610	(two physiotherapists)

Therapy this term has mainly been administered on an individual basis, with the exception of groups conducted with other disciplines. These groups include:

a) Gross motor skills group (held 2 x/week) - conducted with an occupational therapist.

b) Sensori-motor group - conducted with an occupational therapist.

c) Body awareness group - conducted with an occupational therapist.

d) Speech/Gross Motor Group - conducted with the speech therapist.

A Halliwick session is conducted once a week. We have four groups of children participating.

This term, time has been set aside for sessions with the occupational therapist to assess a child's transferring abilities.

For second term we are aiming to form new groups. These include a ball skills group, and balance group.

We are also beginning fitness groups run in conjunction with the nursing sister. The first group are the children who are overweight and have little or no limitations in mobility. We hope to then progress on until even the wheelchair bound children are included.

Videoing children's progress is being attempted at least once a year.

The number of referrals for out-patients is increasing. These children mainly have some minimal cerebral dysfunction. Some younger children are referred with developmental delay. Our out-patients also include students of Koondoola Special School who have been integrated into normal schools.

This term some of the out-patients who had slight problems were put on home programmes. The effectiveness of home programmes will become evident when the children are re-assessed after a break from therapy.

We are still fortunate enough to have the services of Colleen Liston, who conducts a spinal deformity clinic once a month. The occupational therapists have also been invited to attend in order to establish liaison in the area of seating.

Mr. Stewart (orthopaedic surgeon) also attends the school for an orthopaedic clinic once every two months.

The school's policy is being revised. A week-end has been set aside so that all staff members may participate and contribute their ideas about the ongoing role of the school.

The special education farm school is beginning to take shape. One of the six cottages is near completion. An igloo, housing various seedlings has been completed. Vegetables and herbs are growing profusely. One of the physiotherapists has been nominated to be a member of the Board of Management to act in an advisory capacity.

An after school activity group is run each Monday afternoon for the senior section of the school. The aim of this group being to develop outside interests and hobbies for the participants. One physiotherapist, occupational therapists and several other members of the staff regularly combine to run this group.

Interaction within the school is at an optimum, and as such the motto of the school is found to be most appropriate - "Koondoola Special School is a happy school".

WILLETTON SPECIAL SCHOOL

There are 82 children currently attending the school. 61 of these children receive regular physiotherapy and 6 more are seen at regular intervals.

Therapy Services

Therapy is continuing on an individual and group basis. Groups this year include Halliwick swimming, posture and fitness and hemiplegic class.

Outpatient therapy is provided for children with problems who attend regular schools.

Statistics for therapy services May 1983 to May 1984 -

Individual therapy - Total individual units - 8583

Group Therapy	Total Units
Halliwick swimming	123
Posture class	40
Hemi class	61
Phys. rec. class	492
Total Group Units	716

CLUMSY CHILDREN PROGRAMME

The programme is now running in 17 country centres and two metropolitan centres. All children are assessed prior to intervention and then post-tested at a later date. The results from all programmes are being collected centrally and will be used at a later date for either lecture or article presentation.

The future plans for the programme include the development of pertinent teaching aids for both therapists and patients, eg. videos, newsletters, as well as the ongoing education of new staff and the maintenance of established programmes. Within the limit of staffing, it is hoped that in 1984, this programme will be running in all country centres.

SWIM GYM PROGRAMME

Since May 1983, pre and post intervention results of the 'clumsy children' programmes running in country areas have been recorded. Due to other work commitments, therapists working in country areas have not been able to follow control groups of children as well as the intervention group. It was for this reason that it was decided to run a pilot study in the metropolitan area, similar to the country groups in terms of numbers, frequency and duration.

The one hour programme was run once weekly at Rocky Bay Village for a twelve week period. The control group and intervention group were matched for age and sex, but were not matched in terms of motor ability. It would be appropriate in any future study to consider matching the groups according to motor ability possibly by the use of a waiting list.

The children were pre and post tested using the Bruinicks Oseretsky Test of Motor Proficiency (short form) a standardized test of motor performance. A sensori-motor assessment was also carried out on the intervention group, but it should be noted that this is not a standardized testing instrument and therefore the data gained has no scientific reliability.

It would also have been appropriate to follow a third group, who received an hour's talk once weekly from the physiotherapist. This would have controlled for the so-called "Hawthorne" effect - any improvement in motor skills being due to the 'nice' therapist rather the intervention itself.

The results are listed overleaf -

RESULTS OF "SWIM GYM" PROGRAMME INTERVENTION GROUP

		Pre-Test		Post-Test	
	Age	B/O Stanine	S/M Assess	B/O Stanine	S/M Assess
MS	10	3/14	74	6/62	62
JK	10	2/10	88	6/62	60
AO	10	3/16	96	5/58	74
BT	6	3/14	94	4/34	80
CM	9	1/1	114	3/12	85
TP	8	2/10	89	4/38	80
JH	8	1/-1	112	2/10	97
SS	7	4/32	90	6/66	69

No. of stanine change = 17

Control Group

DW	6	6/62	6/62
MU	7	7/88	8/90
JS	8	8/90	8/92
MT	8	7/79	7/86
LP	9	6/62	6/62
TG	10	7/88	8/90
SR	10	6/69	6/69
SF	10	6/66	6/69

No. of stanine change = 2

PARENTHOOD SECTION, C.C.H.S.

During 1983, existing programmes have been running at full capacity and some new programmes have been initiated.

The preparation for birth classes were held on Tuesday and Thursday evenings (for couples) and on Thursday mornings (a short course for people unable to fit in elsewhere). These attracted a total of 3186 expectant parents. In addition a staff physiotherapist addressed the introductory evening for early pregnancy held once a month.

Post-natal classes were held at West Perth and City Beach, and attracted a total of 2110 women and babies. These classes are very busy, especially at West Perth and there is a need for extra classes so that proper attention can be given to each person in the class.

During the year ante-natal keep fit classes have been started and are running both at West Perth and at City Beach. These are very popular indeed and are providing opportunities for health education and preventive health care.

In September the Department was loaned an ultra sound machine to investigate its use in the treatment of breast infections and mastitis in breast-feeding women. Between then and December, some 35 women were treated with very promising results, and the programme is continuing. However the machine on loan is not very satisfactory as it is old and does not accurately measure the output. It would therefore be helpful if the Department could have a more up to date model.

During the year, the staff have been involved in other programmes outside the Department. These include work for youth health and pregnancy help with single pregnant girls, talking to groups of mothers at the request of the child health sisters, holding a weekly keep fit class for over 60's in Subiaco, and serving on a joint R.A.N.F./A.P.A. committee to improve the standards of ante-natal education.

Telephone enquiries and individual appointments from the country have increased both from expectant parents, and other professionals cassettes and leaflets continue to be prepared, revised and sent to the country or handed out to callers at the centre.

If the Department is to continue to expand, more hours will be needed in 1984/85. We wish to establish a regular back care and education course, prepare more up to date videos on child birth education and exercise, and explore further uses for ultra sound to help the women attending our classes.

MULTIPLE SCLEROSIS

A service is provided to the Multiple Sclerosis Society by the Department. Patients are referred by neurologists. Our main aim is to keep people independent and mobile for as long as possible. On an average, 10 people are treated each day.

CHEST CLINIC

Physiotherapy service is provided once a week.

FITNESS PROGRAMME FOR SENIOR CITIZENS

A subjective survey at the end of 1983 answered by 600 people revealed that only 13 had been in hospital during the previous year. Seven had eye operations, and six other procedures not associated with their fitness levels. Dr. Lance Twomey will be conducting a research programme during 1984 to further evaluate our effectiveness.

Several videos have been made covering the well aged, frail aged and nursing homes. At a conference in New Zealand, a presentation of the programme was given with a most enthusiastic response. Our videos are now being shown throughout the country and are used as teaching tools in physiotherapy schools.

At the request of gerontologists, special groups are now being formed for patients with a disability being discharged from hospital. These groups will be monitored and evaluated by a doctor.

HEALTH CENTRES

A total of 15,000 patients were treated in the health centres. 20,000 people attended classes either for maintenance programmes or as a preventative measure. The types of classes are -

Hydrotherapy Groups
Special Schools
Motor Skills Programme
Disabled Groups
Frail Aged
Asthma Groups
Staff Fitness
Post Natal Groups

During the next year it is intended to begin programmes in schools demonstrating back care, posture and the value of fitness. A special programme will be undertaken to provide fitness programmes to migrant women, for coronary care patients and for diabetics.

SOCIAL WORK

Social work services are provided in the following Departmental areas.

Community Health Centres	(8 centres)
Child Development Centre	
Child Health Centres	(3 centres)
Special Schools	(2 schools)
Youth Health Services	
Central Resource Pool	
Departmental Personnel Counselling Service.	

There are now the equivalent of 18½ full-time social work positions within the Department.

New individual clients or families referred to some of the areas are as follows:-

Community Health Centres	1819
Child Development Centre	284
Child Health Service Centres	216

Details of the source of all referrals, the number of interviews, home and hospital visits, the amount of supportive consultative work with other professionals and the amount of group work was recorded through monthly reports and is available on request.

In addition to individual client counselling, work with both adults and children in groups, social workers have been instrumental in developing and maintaining a number of health related community development projects. Significant among these have been the aged persons homes support schemes, using volunteers that have been established throughout the metropolitan area and in some country areas. A good team approach has now been developed between social workers and departmental administrative and clerical staff in providing advice and assistance in starting and running volunteer home care support groups.

Social workers not only have people referred to them for help but are used by other professional staff on a consultative basis. They are used to support and advise on various issues ranging from individual client problems to the development of group and community projects. In many positions up to a quarter of the social worker's time is used in consultative and supportive work.

The Personnel Counselling Service for staff has continued to provide a valuable service in helping to deal with the personal problems experienced by staff that have the obvious effects on their well being as well as their work performance. The service however had a tragic set back resulting from the death of Mrs. Helen Bartle who was the personnel counsellor. Her skills and warm personality will be missed by those who had the privilege to know her.

Social work services have again been stressed to the limit with countless hours of unpaid overtime being worked. The situation in all metropolitan based positions is that of serious overload, with many referrals not being able to be accepted. The demands are now such, that unless further staff positions can be established any further increase in work undertaken can only be met by a significant deterioration in standards.

STATEWIDE CHIROPODY SERVICES

1983 was significant for the number of new developments in the chiropody service.

An extra session was added to the Domiciliary Chiropody Service, bringing this up to 4 per week. It is hardly a satisfying situation though with such large numbers requiring the service. The service is restricted to a small area in and around Perth. The other parts of the metropolitan area are unserviced.

1983 also saw the commencement of the full-time chiropodist at the Mandurah Community Health Centre. A well overdue appointment. The demand for the service has increased to the extent that a further full-time appointment is required.

I was also able to visit the Eastern Goldfields Health Centre and discuss many of the problems faced by nursing staff etc. in relation to foot health. A recommendation has been made for the appointment of a full-time chiropodist for the new Eastern Goldfields health centre.

Contact was also made with the Education Department in relation to their K-10 syllabus. This is a health education syllabus, designed for primary school students with an emphasis on many areas of personal health. Foot health was included in many areas of the syllabus. It is felt that this is the most efficient way of disseminating foot health information to children because of the logistics involved in attending individual schools etc.

For the first time in Western Australia, the Australian Podiatry Association participated in Foot Health Week (May 9-15).

This was fully supported by the Public Health Department, both with audio visual material and use of St. Georges Hall in Hay Street. It is hoped that the chiropody service will participate in this health promotion annually.

Towards the end of 1983 funds were allocated for the establishment of a full-time position at the Lockridge Health Centre, and an additional position at the Geraldton Health Centre.

Amalgamation of the three main health departments is scheduled for 1984 and this will affect the chiropody services of all three areas. Some rationalisation of services will be required and it is hoped that with the right sort of direction, a smooth and efficient unit of chiropody services will be produced.

Appendix V

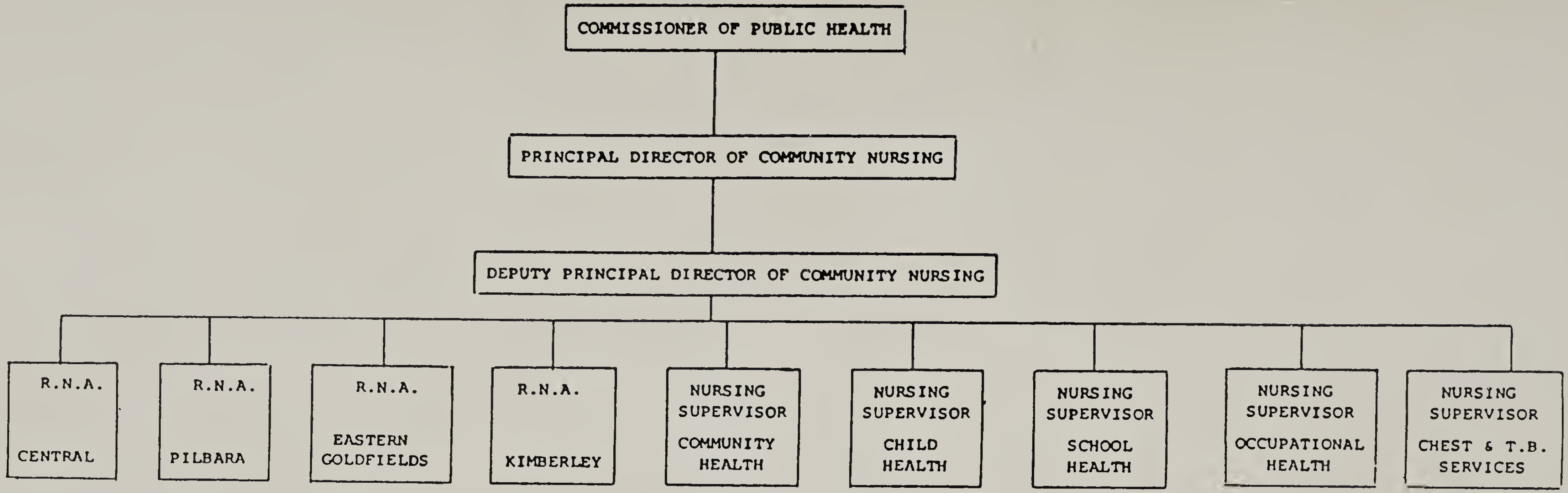
COMMUNITY NURSING SERVICE

SENIOR STAFF

Principal Director of Community Nursing : Miss P.M. Reid
Deputy Principal Director of Community Nursing : Mrs. P. Baskin

Miss P.M. Reid
F.C.N.A., Dip.N.(N.Z.)
Principal Director of Community Nursing

COMMUNITY NURSING SERVICE - ORGANIZATION CHART*


COMMISSIONER OF PUBLIC HEALTH
PRINCIPAL DIRECTOR OF COMMUNITY NURSING
DEPUTY PRINCIPAL DIRECTOR OF COMMUNITY NURSING
R.N.A. CENTRAL
R.N.A. PILBARA
R.N.A. EASTERN GOLDFIELDS
R.N.A. KIMBERLEY
NURSING SUPERVISOR COMMUNITY HEALTH
NURSING SUPERVISOR CHILD HEALTH
NURSING SUPERVISOR SCHOOL HEALTH
NURSING SUPERVISOR OCCUPATIONAL HEALTH
NURSING SUPERVISOR CHEST & T.B. SERVICES

R.N.A. = Regional Nursing Administrator

*Interim, pending changes on 1/1/84

COMMUNITY NURSING SERVICE

STAFFING	1 Jan. 1983	31 Dec. 1983
Chest & Tuberculosis Services		
Visiting Nurses	13.25	12.25
Child Health Section		
Child Health Nurses	139	136
Community Health Section		
Enrolled Nurses	5	5
Field Nurses	105	85
Health Workers	59	44
Eastern Goldfields Public Health Region		
Field Nurse	26	23
Child Health Nurses	4	4
Enrolled Nurse	1	1
School Health Nurses	5	5
Health Worker	12	12
Kimberley Public Health Region		
Child Health Nurses	3	3
Enrolled Nurses	2	3
Field Nurses	42	48
Health Workers	29	32
School Health Nurses	3	4
Miscellaneous Registered Nurses	3	3
Occupational Health Nurses	2	5

	7 Oct. 1983	31 Dec. 1983
*Pilbara Public Health Region		
Field Nurses	16	20
Enrolled Nurses	3	2
School Nurses	4	4
Child Health Nurses	5	4
Health Workers	16	15

	1 Jan. 1983	31 Dec. 1983
Special Treatment Clinic	6	7
School Health Section		
Enrolled Nurses	5	4
School Health Nurses	134	132
Staff Development Unit	8	9

*The figures for the Pilbara Region for January 1983 are included in the Community, Child Health and School Health Sections. This region was commenced in October 1983, and the figures shown are as of October 1983.

Working from community-based centres in close proximity to those areas where people live and work, community nurses have continued to provide a network of direct health services to individuals and families throughout the State with a focus on health promotion and the prevention of illness. The broad scope of their nursing practice forms an important resource in the various Branches and Regions of the Department.

New Developments

In 1983 plans to complete the reorganisation of the Community Nursing Service within the Department were finalised and their implementation successfully progressed.

Historically the nursing service has been organised on a functional basis, the main streams being community health, child health and school health - smaller areas but not less important are occupational health, tuberculosis and chest services and venereal disease control.

Nursing administration is now decentralised to a regional level and combined nursing services are organised on this geographical basis, responsible to a single nursing administration. The intent is to enhance a nursing team approach to community centred health care; increase organisational flexibility and speed decision-making.

The established nursing roles (child, school, community) are maintained but co-ordinated, managed and evaluated at the regional level. Emphasis is placed on disseminating and sharing knowledge and skills throughout the State.

There has been close collaboration with senior nursing and administrative personnel in the planning of this structure and it is their positive contribution and expertise that has facilitated the progress of the change.

The experience and advantages of community nursing regionalisation in the Kimberley and Eastern Goldfields Public Health Regions influenced the Department's decision to proceed with implementing this nursing structure in the Pilbara and Central Regions in 1983 and, finally, in the metropolitan and South West Regions in January 1984.

Consequently, Mrs. Kate Forrest was appointed to the position of Pilbara Regional Nursing Administrator and Miss Helen Furniss was appointed to the position of Central Regional Nursing Administrator in October 1983.

There have been advances in the cohesion of nursing personnel and nursing services in both areas. It is expected that this will increase next year with the appointment of Deputy Nursing Administrators.

To reflect the responsibility and accountability of the Regional role, agreement and approval has been given to retitle the position as Director of Community Nursing and Deputy Director of Community Nursing.

The following staff have accepted new positions to commence in January 1984 (current positions to cease 31/12/83).

NAME	CURRENT POSITION	NEW POSITION
Miss Chidlow	Nursing Supervisor Child Health Section	Director of Community Nursing Metropolitan Region
Mrs. Campbell	Deputy Nursing Supervisor Child Health Section	Deputy Director of Community Nursing Metropolitan Region
Miss Giddings	Assistant Child Health Section	Deputy Director of Community Nursing South West Region
Mrs. Panter	Nursing Supervisor Community Health Section	Co-ordinator Nursing Administration
Mrs. Lowrie	Deputy Nursing Supervisor Community Health Section	Deputy Director of Community Nursing Metropolitan Region
Miss Hardie	Deputy Nurse Supervisor School Health Section	Co-ordinator School Health Nursing
Miss Keddie	Nurse Supervisor School Health Section	Director of Community Nursing South West Region

COMMUNITY DAY SERVICES - CO-ORDINATOR

To augment support for existing Community Day Service Centres and provide professional assistance in the development of new centres, Community Nurse, Mrs. Gay Johns, was appointed this year and has established a service that has been well received and utilised. Assistance has been provided at the new day services at Manning and Bayswater and in planning for centres at Subiaco, Midland and also with proposals from the Greek community, City of Perth, Air Force Association and the League of Home Help.

YOUTH HEALTH SERVICE

Adolescents comprise another vulnerable group in our complex society and their needs and problems have frequently been overlooked in the development of traditional health services. A Youth Health Service was established to address this situation and act as resource within the Department. Mrs. Hilary Swain was appointed as community nurse in the team and joined the doctor and social worker.

HEALTH PROMOTION CENTRE

Mrs. A. Del Fante is to join the team at the Health Promotion Centre in the National Mutual Arcade. As an experienced community nurse Mrs. Del Fante has a broad background in various aspects of health promotion especially in group work.

NURSING SCHOLARSHIPS

The State Minister for Health offered 2 scholarships for nurses employed in the Public Health Department to undertake courses of study for tertiary level qualifications in 1984-85.

Mrs. McFarland and Mr. Beaton were each granted a scholarship to undertake studies at the School of Nursing, W.A.I.T.

QUALITY ASSURANCE

Senior staff are examining the development of a quality assurance programme with the objective of defining, evaluating and improving nursing services.

Quality assurance was the subject of the keynote address at the Nurses' Annual Conference this year. Whilst overseas, Mrs. Panter, Nursing Supervisor, Community Health discussed this issue with senior health personnel in New Zealand and the U.K. Programmes are being established in both countries.

CITIZEN OF THE YEAR

Mrs. Harris has been the community nurse at Mandurah Adult Day Centre since it first started and through professional skills and personal qualities has created an environment that is warm, caring and dynamic.

In recognition of outstanding service to the disabled and elderly community in Mandurah, Mrs. Harris was honoured with the Mandurah 1983 Citizen of the Year Award.

GENERAL

Tuberculosis and Chest Services

Visiting nurses continued to provide assistance and management at home for those with Tuberculosis (152 notifications were made in W.A. in 1983). Nurses in this service also conducted a special control survey in Roebourne. In the schools BCG Programme 21,526 children were vaccinated against tuberculosis.

An effective Stop Smoking Clinic is in more demand during winter months and this year had an initial 53% success rate.

A total of 244 persons with asthma were referred to the nursing service for assistance and follow-up visits were 785.

Occupational Health

Nursing services were augmented during this year with the recruitment of a nurse in Perth and another in Karratha. The nurse position at the Police Department formerly under the auspices of Community and Child Health Services was transferred to this service in February 1983.

Child Health

Live births in W.A. have increased from 20,624 in 1980 to 22,856 in 1983. The increase of approximately 700 live births in 1983 led to a marked increase in attendance at Child Health Centres of individual children by 3,514 (5.4%).

This increase is a continuing trend showing a 24% increase in individual attendances since 1978 (29% since 1975); and an 8% increase in gross attendances since 1978 (16% since 1975). Telephone consultations have increased by 54% since 1978 (72% since 1975) and indicate the need in the community for parental reassurance with regard to young children.

The number of child health nurses working at service level has decreased, consequently most nurses have an increased - sometimes excessive - work-load.

In addition to their family services child health nurses have undertaken various surveys that involve considerable extra time and effort.

1. Thiamine Survey - related to Sudden Infant Death Syndrome. 5,184 blood samples were collected throughout 1983 from babies attending Child Health Centres.

2. Ongoing reports of Congenital Malformations - providing data for the register of Western Australia.

3. Study of Gastro Oesophageal Reflux in Perth children - a study undertaken in conjunction with Princess Margaret Hospital for Children.

4. Survey questionnaire to parents attending Child Health Centres which indicated a high level of satisfaction by parents using the service.

5. Usage of Child Health Services by age 17 years and under Non-Aboriginal mothers.

Health resources in country areas are often minimal and many families are dislocated from their usual support systems. In several country areas there is continuing difficulty in the recruitment of child health nurses to vacant positions. As all staff are extended, temporary assistance from other centres is rarely possible. A recent survey indicated that further staff decrease will occur in child health nurses in the near future due to a number of personnel reaching retirement age. There has been a low response to national advertising and recruitment measures.

It is also envisaged there could be a growth in child care services (multi-purpose) in the near future and health services need to plan for their involvement.

We must examine the need in the areas of child health nursing services; the developments and approaches elsewhere in Australia and overseas; and take action on manpower planning.

School Health

Nurses have provided health surveillance and education programmes for children at school and a comprehensive nursing service in 70 high schools throughout the State. Nursing services continued during 1983 for those children with physical, intellectual and sensory handicaps. Nurses are also appointed to schools designed as PRIORITY SCHOOLS. These are schools which have recognised priority needs in educational and other services. Many of the children have different cultural backgrounds and difficult social conditions.

Nurses assigned to priority schools utilise various community resources in the management of the children's health needs including the use of interpreters and some have undertaken language courses to enable closer liaison with the families of the children.

The five schools in this programme with nurses providing health care are:-

Balga Senior High
East Fremantle Primary
Highgate Primary
Lockridge Primary
Midland Primary

Community Health

In April, Mrs. Sadie Canning returned to Hospital and Allied Services. Mrs. Canning's contribution in the area of Aboriginal health was highly valued by all those who had contact with her throughout the State.

In general, staffing in most areas has been more stable and this has contributed to more effective health programmes with many communities. The value of continuity of involvement in community work is considerable. In many centres there have been more group sessions with more reported interaction.

Health assistance and screening of migrant families at Graylands Hostel has continued with follow-up when necessary on re-location. This is an important area of public health nursing both for individuals and the broader community.

Co-operation with voluntary organisations has continued in the provision of nursing services for many groups with chronic illness (arthritis and rheumatism, multiple sclerosis, muscular dystrophy and diabetes).

Health Workers

Further regional appointments were made to Health Worker - Special positions. It is suggested that the title Regional Aboriginal Health Liaison Officer would clearly describe their role.

The current appointees are contributing most effectively to Regional management terms and assisting staff and communities with health issues and problems.

Many staff have worked hard to assist in establishing Health Committees in communities that see the need for them. 1984 should see improvements through this involvement in community development.

Kimberley

Community nurses and health workers, despite many pressures, have endeavoured to meet the health needs of the varied and frequently isolated communities of the far north.

The increase in the outstation movement, with small encampments in almost inaccessible areas has provided further challenge.

The complexity and rapidity of social change and the demands of acute illness make it difficult to develop health measures with long term benefits. The situation has been compounded by changes in health values, expectations and resources. All these changes have considerable effect on the endeavours of the staff who live and work there.

Eastern Goldfields

The integration of community nursing services this year has progressed in this region. It has been especially evident in the area of community health and school health with benefits for the rural areas.

"Child Health of the Air" commenced as a pilot project on 12/5/83 with child health nurses providing a session on the Royal Flying Doctor Service radio network to families in the outback. The project has been a great success and is now incorporated into the role of the Kalgoorlie based child health nurses.

Exercise groups with the elderly have been very popular and full of variety - from armchair exercises to water exercises. Clients have expressed increased enjoyment, relaxation, mobility and social interaction as benefits they have had from the groups.

In 1983 a community nursing service was re-commenced in Warburton and the surrounding outstations with evident success in several areas of health care. It is hoped that the community will re-form the Health Committee there in 1984.

Research and Evaluation

Miss Bedford, Research Nurse, has continued on the Midwives Notification System, Perinatal and Infant Mortality and Aboriginal Morbidity and Mortality within the Statistics Branch.

Assistance has been given in developing the new Encounter System for field staff and to Branches and Regions in planning and developing new programmes and evaluation projects. An annotated bibliography is also being compiled to assist the Quality Assurance Working Party.

Nursing Education

Mrs. Anstead, a Nurse Educator from Sydney, commenced as Principal Staff Development Officer in February 1983.

In-service programmes for nurses and health workers have been co-ordinated and consolidated under Mrs. Anstead's guidance. Approaches by the staff development nurses in the unit are supportive of the regionalised structure of the nursing service.

The Nurses Annual Conference was again held in August at the University of Western Australia and proved to be stimulating and informative.

Departmental Nursing Representation

During 1983 the Deputy Principal Director of Community Nursing, Mrs. Baskin, participated in the following:-

- The Advisory Committee for Nursing, W.A.I.T.
- The State Advisor for Kellogg Nursing Fellowships
- The State Selection Committee Kellogg Nursing Fellowships

Mrs. Baskin also made official visits to the Kimberley and Central Regions and to various centres in the metropolitan area.

During 1983 the Principal Director of Community Nursing, Miss Reid, participated in the following:-

- Nurses Board of Western Australia : Representing Community Nursing Administration : Ministerial Nominee.
- Child Health and Mothercraft Subcommittee : Nurses Board.
- Registration Committee : Nurses Board.
- Nursing Education Evaluation Project Advisory Committee : W.A.I.T.
- Standing Committee on Mothercraft/Child Care Course : Nurses Board.
- West Australian Trachoma and Eye Health Association.

The Principal Director of Community Nursing accompanied the Commissioner, Deputy Commissioner and the Director of Administration on official visits to places in the South West and Metropolitan areas.

In October, Miss Reid attended the first National Conference on Remote Area Nursing, Alice Springs. Miss Reid and Mrs. Bernard both presented papers at the Conference.

CONCLUSION

1983 has seen considerable change within the nursing structure - the introduction of new phases, and the consolidation of earlier developments. Despite some natural concern the staff have given their support throughout and continued in the provision of quality nursing care. My thanks and appreciation go to all nurses, enrolled nurses and health workers, and to those staff of the Department who assist and support the nursing function throughout the year.

Appendix VI

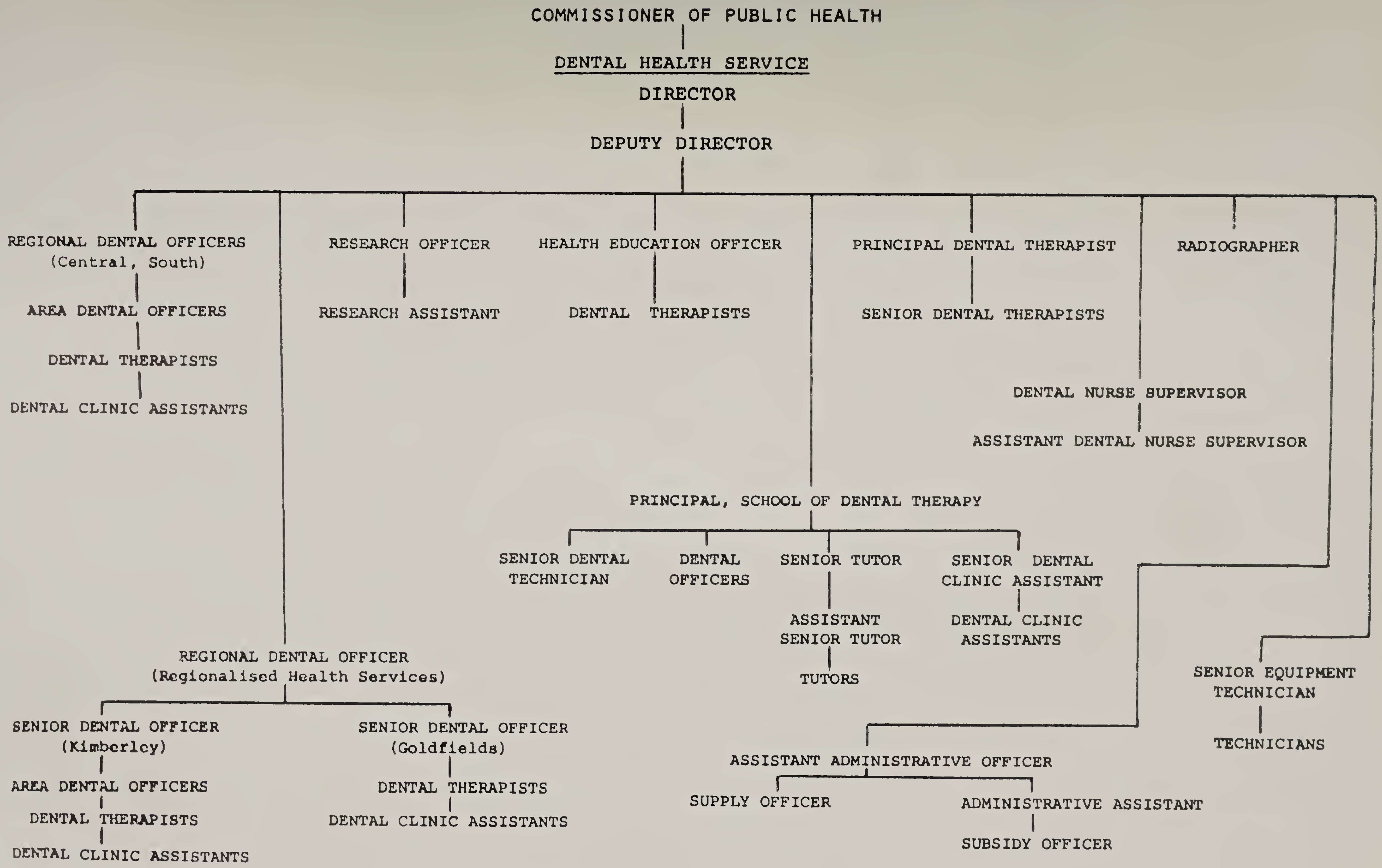
DENTAL HEALTH SERVICES

Mr. J.L. Prichard,
Dip. D.S., B.D.Sc., F.I.C.D.
Director

SENIOR STAFF

Director : Mr. J.L. Prichard
Deputy Director : Mr. H.G. Lamplough
Principal, School of Dental Therapy : Mr. D.C. Neesham
Assistant Administrative Officer : Mr. R.J. Hatch

DENTAL HEALTH SERVICES - ORGANIZATION CHART



DENTAL HEALTH SERVICES

1. INTRODUCTION

1983 was a year of further consolidation for Dental Health Services. Following the expansion during previous years of the School Dental Service throughout the State, the effectiveness of the preventive programme and the continuing emphasis on working efficiency resulted in a continued improvement in operator/patient ratios.

The introduction to the School Dental Service of an atraumatic treatment technique for deciduous teeth has been a major innovation for paediatric public health dentistry.

The Itinerant Dental Service continued to provide biannual visits to most of the remote communities throughout the State.

2. ADMINISTRATIVE SERVICES

2.1 Staff

Staff numbers as at 31 December 1983 were as follows:-

Dental Officers	44
Dental Therapists	230
Dental Clinic Assistants/ Dental Nurses	184
Clerical and General Staff	28
Wages Staff	15
TOTAL STAFF :	501

2.2 Equipment Maintenance

The major items of dental equipment in use by Dental Health Service comprised, as at 31 December 1983:-

Dental Chairs	300
Dental Operating Units	330
Dental Operating Lights	330
Dental Evacuation Systems	300
High Speed Handpieces	360
Low Speed Handpieces	360
Low Speed Handpiece Attachments	1,200
Low Speed Motors	360
Air Compressors	150
Autoclaves	150
Dental X-ray Units	150
TOTAL MAJOR ITEMS :	3,990

3. SUBSIDISED DENTAL SCHEME

The scheme continued as in previous years. Statistical data relative to the scheme is as follows:

TABLE 1

SELECTED STATISTICS FOR SUBSIDISED DENTAL SCHEME : 1983

	Children	Pensioners	Others	Total
Applications Received	522	1,988	3,685	6,195
Applications Approved	515	1,925	3,512	5,952
Cost of Services ($)	44,719	351,623	540,252	936,594
Subsidy Paid ($)	36,649	272,304	424,224	733,177
SERVICES:				
Examinations				2,820
Extractions				3,561
Restorations				9,162
Dentures				2,040

4. A description of the general, itinerant service provision is detailed in the Annual Report of the year 1982 and no significant changes occurred in 1983.

A summary of treatment provided by general clinics and itinerant officers is contained in Table 2.

TABLE 2

SUMMARY OF TREATMENT PROVIDED BY THE GENERAL AND ITINERANT DENTAL SERVICES, 1983

PREVENTIVE	
Prophylaxis	1,916
Preventive Treatment	1,173
RADIOGRAPHY	
Films	877
OPERATIVE	
Amalgam Restorations	4,486
Synthetic Restorations	1,776
Gold Restorations	70
Crowns/Bridges	68
Root Canal Restorations	146
Sedative Treatments	815
SURGICAL	
Teeth Extracted	2,045
Minor Surgical Procedures	101
PROSTHODONTICS	
Complete Dentures	157
Partial Dentures	123
Rebase/Reline	15
Repairs/Additions	218
ORTHODONTICS	
Removable Appliances	38
PATIENT ATTENDANCES	16,221

5. SCHOOL DENTAL SERVICE

The coverage by the School Dental Service over the years 1974 - 83 is shown in Table 3.

TABLE 3

COVERAGE BY THE SCHOOL DENTAL SERVICE, 1974-1983

Year	Number of Dental Therapy Centres	Target Population (Primary School children)	No. of children with access to the School Dental Service	% of children with access to the School Dental Service
1974	9	152,280	9,810	6.4
1975	14	154,089	18,099	11.7
1976	39	157,359	46,466	29.5
1977	65	162,081	70,942	43.8
1978	89	165,086	98,319	59.5
1979	102	165,245	110,905	67.1
1980	127	165,317	149,422	90.4
1981	134	184,615*	173,198	93.8
1982	137	189,730*	179,854	94.8
1983	139	191,560*	182,331	95.2

*Primary, Pre-primary and Pre-school children.

Table 4 indicates the continued successful control of dental caries in school children.

Significantly the numbers of decayed teeth in children continue to fall both for 6 year old and 12 year old children.

TABLE 4

SELECTED PARAMETERS OF THE SCHOOL DENTAL SERVICE, 1977-1983

	1977	1978	1979	1980	1981	1982	1983
Number of examinations	25,391	90,774	136,487	182,821	226,982	229,104	242,870
Percentage of children with no caries experience in the permanent teeth at age 12	12.1	14.4	18.4	19.6	18.8	19.7	22.1
Mean number of missing permanent teeth per 100 children at age 12	19	16	10	7	8	5	3
Mean number of decayed, missing and filled permanent teeth per child at age 12	3.9	3.6	3.2	3.0	3.0	3.0	2.8
Mean number of decayed permanent teeth per child at age 12	1.3	1.1	0.7	0.6	0.6	0.6	0.5
Mean number of decayed deciduous teeth per child at age 6	1.3	1.2	1.1	0.9	0.8	0.8	0.7

6. MISCELLANEOUS

6.1 Visitors

The Dental Health Service was pleased to receive visits from the following persons:-

Mr. R. Sheehan, Chief Executive Officer, Dental Health Services, Health Commission of Victoria.

Mr. M. Grant, ESPE GmbH, Munich, West Germany.

6.2 Publications

(1) "The Dental Health of Children Eight and Fifteen Years of Age Living in Bunbury, Western Australia".
G.W. Medcalf. Aust. Dent. Journal. 28:162-5; 1983.

(2) "The Effect of School Dental Care on Caries Oral Hygiene, Gingivitis and Calculus in Western Australian Children".
G.W. Medcalf. Aust. Dent. Journal. 28:239-42; 1983.

7. ACKNOWLEDGEMENTS

Throughout the year this Branch enjoyed support and assistance from the Commissioner of Public Health, Dr. J.C. McNulty and the Deputy Commissioner of Public Health, Dr. L. Holman as well as the continued co-operation of all Branches and Sections of the Public Health Department.

Particularly, the assistance of the Royal Flying Doctor Service of Australia (Eastern Goldfields Section Inc.) in transporting the staff and equipment of the Itinerant Dental Service to remote communities in the south east of the State, is greatly acknowledged.

Finally, the successful accomplishments of the Dental Health Service could not have occurred without the loyal dedicated service of the personnel of the Branch. To these members I record my personal thanks.

Appendix VII

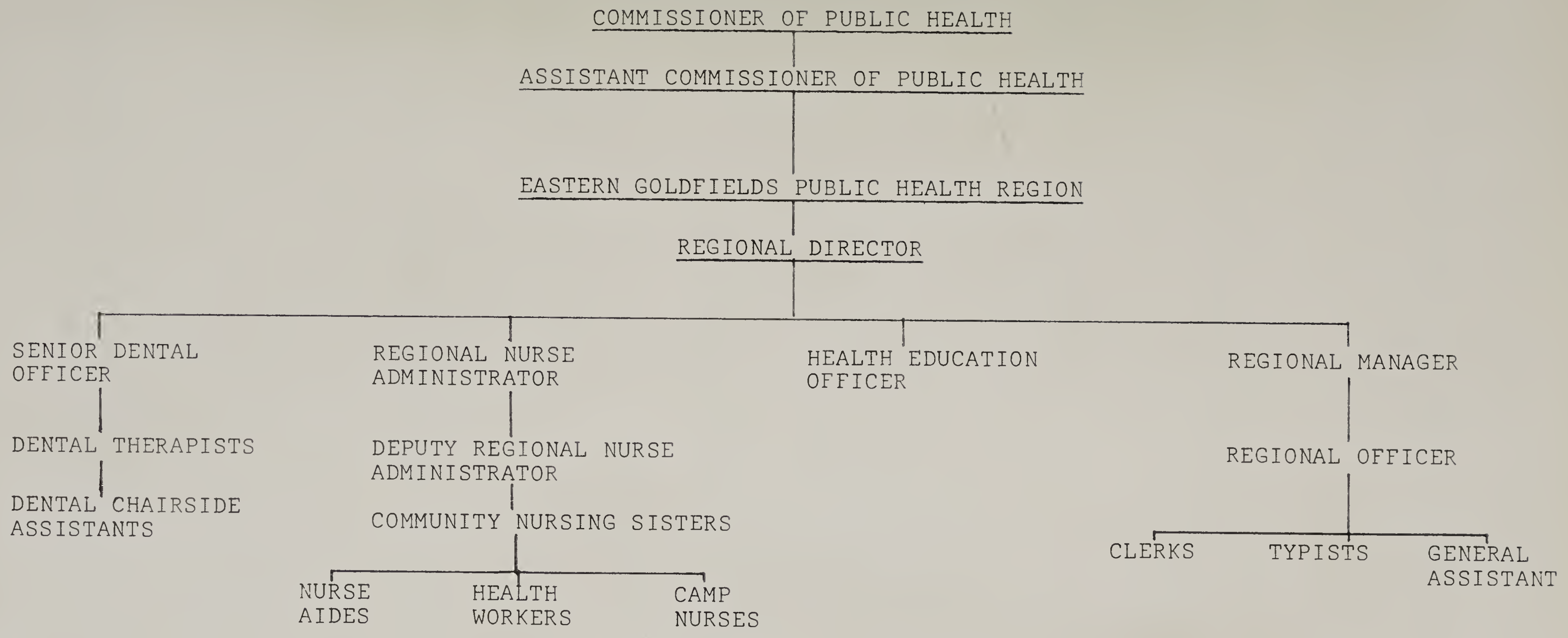
EASTERN GOLDFIELDS PUBLIC HEALTH REGION

SENIOR STAFF

Regional Director : Dr. D.R. Coid
Senior Dental Officer : Mr. K. Lomax
Regional Nurse Administrator : Mrs. G.A. Bernard
Regional Manager : Mr. B.A. Clark
Health Education Officer : Mrs. C. Tauss

D.R. Coid
M.Sc., B.Med.Sci., B.M., B.S., M.R.C.P.
Regional Director

EASTERN GOLDFIELDS PUBLIC HEALTH REGION - ORGANIZATION CHART


COMMISSIONER OF PUBLIC HEALTH
ASSISTANT COMMISSIONER OF PUBLIC HEALTH
EASTERN GOLDFIELDS PUBLIC HEALTH REGION
REGIONAL DIRECTOR
SENIOR DENTAL OFFICER
DENTAL THERAPISTS
DENTAL CHAIRSIDE ASSISTANTS
REGIONAL NURSE ADMINISTRATOR
DEPUTY REGIONAL NURSE ADMINISTRATOR
COMMUNITY NURSING SISTERS
NURSE AIDES
HEALTH WORKERS
CAMP NURSES
HEALTH EDUCATION OFFICER
REGIONAL MANAGER
REGIONAL OFFICER
CLERKS
TYPISTS
GENERAL ASSISTANT

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

TABLE I

STAFF AS AT 31 DECEMBER, 1983

	Approved Full-Time Positions	Number of Employees
Medical Practitioners	1	1
Dental Practitioners	1	1
Nursing Administration	3	3
Administrative/Clerical	5	5
Health Education Officer	½	1
Public Health Field Nurses	19	18
Chest & Tuberculosis Nurse	½	1
Child Health Nurses	5	4
School Health Nurses	5	5
Dental Therapists	8	8
Dental Chairside Assistants	6	6
Health Workers	13	16
Camp Nurses	N/A	12
Sessional Dental Officers	N/A	2
Sessional Medical Officers	N/A	1

INTRODUCTION

In 1983 the Eastern Goldfields Public Health Region completed its first year as a regional branch of the Public Health Department.

The poor environmental conditions in the Region's Aboriginal communities remained during the year. There were, however, certain positive moves to improve the situation. Examples were the erection of housing at Mt. Margaret, the planning of the transfer of the Cundeelee community to Coonana and the institution of more regular departmental environmental advice to the very remote Central Reserve communities. The provision of adequate water supplies, remained a great problem for Eastern Goldfields remote communities.

The region was pleased to gain approval to pursue two major building projects: extensions to the Regional Headquarters in Boulder and the construction at Kambalda, of accommodation for three Departmental officers. In addition an office was opened in Ravensthorpe.

An important member of the public health team was introduced to the Region with the appointment of the first local Departmental Health Education Officer. There had been a great need to increase the Region's involvement in the behavioural aspects of public health practice. This initiative resulted in more widespread health promotion throughout the Eastern Goldfields.

Efforts were made to highlight the activities and services of the Public Health Department. The Region attempted to liaise closely with the local press, radio and television. The Regional Director gave a number of radio interviews and a number of health topics were discussed by nurses on local television. Further promotions of the Department's health programme occurred at the Esperance show and the Kalgoorlie/Boulder Community Fair.

Access to immunisation services by the community in the region was improved by the introduction of the mobile service to Leinster and the establishment of immunisation clinics at Esperance and Kalgoorlie. These clinics complement those already in existence at Kambalda and Boulder.

The second Aboriginal Medical Service in the Eastern Goldfields commenced activities in Kalgoorlie/Boulder. Departmental staff had regular contact with staff from this service. A lively co-operation with both services was being established. At the end of 1983 there was however, a lull in the activities of the Western Australian Trachoma and Eye Health Association. The Region was planning to continue trachoma control as an integrated component of its overall strategy for regional health.

The year 1983 saw the consolidation of the regionalised health services in the Eastern Goldfields. It is felt that this process had indeed lead to more appropriate, responsive and efficient health care delivery.

COMMUNITY NURSING

Community nurses continued to provide services in a plethora of situations throughout the Eastern Goldfields. Recruitment of certain personnel to isolated areas especially child health nurses was a persistent problem - in particular the full-time position at Leonora remained unfilled after 12 months of seeking suitable applicants. Another problem was the administration of the data collection systems; community nurses in the Region operate six separate systems according to their area of activity. Nurses continued the Pilot Study of the new client encounter books. Encounter statistics for 1983 are shown in Table II.

1. Nursing Services for Aboriginals

The consolidation of community nursing services in the Central Reserve continued satisfactorily in 1983. In Kalgoorlie innovations included the introduction of a diabetic clinic at Parkeston (in conjunction with the Silver Chain Service) and a Drop-In Centre for Aboriginal mothers and children. At Cundeelee appalling environmental conditions continued to hinder the community nurses in their activities; however immunisation cover of children in this community was 100% and the prevalence of trachoma was surprisingly small. There were only 7 emergency evacuations of clients by the Royal Flying Doctor Service in 1983.

The problem of petrol sniffing showed a resurgence at the end of 1983 in all Aboriginal communities in the Region.

2. Immunisation Clinics

Further immunisation clinics were established in Kalgoorlie and Esperance. 3,279 immunisations were given in Eastern Goldfields Public Health Region clinics (Table III).

3. Nursing Services for the Eastern Goldfields Regional Prison

The appointment of a nurse by the Prisons Department reduced the Region's workload in this sphere. However the Region continued to assist with voluntary S.T.D. screening. The results are as follows:

Clients	464
Positive Treponemal Serology	10
Gonorrhoea	25

Treatment and contact tracing was effected.

4. Public Health Field Nurses with Flying Duties

In 1983 the Public Health Department continued to recruit and administer the Kalgoorlie Flying Nurses, this is in contrast to Perth based Flight Nurses where the Royal Flying Doctor Service accepts responsibility for these functions.

In 1983 there were 2,065 flying hours. The average number of hours flown was 13.2 hours per nurse per week.

5. Arthritis Nursing

Over 800 home visits were made by the Arthritis Nurses in 1983; clinics at Esperance and Kalgoorlie were well attended. A "Healthy Eating" Group was started in association with the Silver Chain Association.

6. Exercise Classes for Senior Citizens

After instituting these groups in 1982, groups also commenced at Southern Cross and Coolgardie. A water exercise programme has commenced in Kalgoorlie, Health Education talks were held after some of the sessions.

7. Child Health Nursing

Child Health Nursing activities are shown in Table IV. The staffing shortages reported in the 1982 report continued throughout 1983. Despite an already imposing workload, the Sisters in Kalgoorlie instituted a "Child Health of The Air" service for mothers in the Eastern Goldfields 'outback'. The support of the Eastern Goldfields RFDS in this project is acknowledged. Furthermore the Sisters made periodic appearances on local television to promote the service. They are to be congratulated.

8. School Health Nursing

Services continued smoothly in 1983. Screening activities are shown in Tables V and VI.

9. Extended Care Services

Field nurses in Coolgardie, Leonora, Warburton, Laverton and Mt. Margaret are involved in Extended Care activities that mainly include health surveillance, ensuring adequate nutrition and review of medications.

In Norseman and Ravensthorpe, these duties were more extensive and are shown in Table VII.

10. Aboriginal Health Worker Training

Three workshops for Health Workers were held in 1983. Planning was in hand for a workshop in Warburton in early 1984.

A position was obtained in the Region for a Senior Regional Health Worker.

11. Chest & Tuberculosis Nursing

The main activities in 1983 consisted of assisting with clinics, the Pneumoconiosis Medical Board, B.C.G. vaccinations and Stop-Smoking programmes.

DENTAL SERVICES

School Dental Therapy Services continued their preventive work in the southern half of the region. Children in the North-Eastern Goldfields, Central Reserves and Nullarbor Plain settlements continued to be served by periodic visits by the Itinerant Dentist. The Royal Flying Doctor Service (Eastern Goldfields Section) assisted with transport to these remote areas.

The Silver Fluoride programme was introduced in October.

Dental staff participated in a number of Regional health promotions including a Canteen Seminar in Kalgoorlie and those at the Esperance Show and the Kalgoorlie/Boulder Community Fair.

HEALTH PROMOTION

These programmes commenced in July 1983. There was considerable involvement in assisting teachers in various educational establishments. In particular the areas of nutrition and drug education were addressed. Support was given to a number of self-care groups including the Goldfields Awareness Group and a newly formed Specific Learning Difficulties (SPELD) group in the Goldfields.

Already the Health Education Officer has become an important source of health information in the region in the last 6 months of 1983. Requests for information and assistance have been received from:

Schools	22
Public Health Department staff	50
Community/Govt. agencies	87
Hospitals	4

It is anticipated that in 1984 there will be significant involvement by the Health Education Officer with the statewide anti-smoking programme.

ADMINISTRATION

The year 1983 has been one of substantial achievement despite the imposition of significant expenditure restraints in the first half of the year. Office and clinic accommodation has been significantly upgraded throughout the region. In Esperance the Shire assisted with alterations to the child health clinic to create a centre from which all staff now operate. Improved office-clinics were acquired in Warburton and Ravensthorpe and in Laverton negotiations were completed with the Shire to extend the existing premises. It was particularly pleasing to receive funding for Departmental housing in Kambalda and the extensions of the Regional Headquarters in Boulder. Both of these projects should be completed in mid 1984.

For the year 1983-84 the Region received a more adequate appropriation of contingency monies. However the contribution for Itinerant Health significantly outweighed other sources of finance (Table VIII).

The devolution of administrative functions to the Region led to heavy workloads for clerical staff which were undertaken in relatively adverse working conditions.

ACKNOWLEDGEMENT

I wish to thank all Eastern Goldfields Public Health staff whose continuing enthusiasm and loyalty led to the Region's continuing success in its health promotion projects throughout the Goldfields.

TABLE II

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

NUMBERS OF ENCOUNTERS 1983

ENCOUNTER CODES	0-5	6-14	15-19	20-49	50-64	65+	Age Unknown
11 UNDER FIVES PROGRAMME	5510	167	36	168	1	1	872
12 HEALTH SCREENING	529	8989	294	4055	415	768	9510
13 GROUP ENCOUNTERS							1282
14 EAR DISEASE	406	629	36	58	12	14	660
15 EYE DISEASE	58	45	10	87	60	88	195
18 ANTE OR POST NATAL	58	-	139	346	-	1	163
19 ACCIDENT OR INJURIES	102	154	113	580	136	91	151
20 ALCOHOL OR OTHER DRUG ABUSE	6	13	12	80	56	58	280
21 SKIN DISEASES	333	885	135	506	84	261	681
22 GASTRO INTESTINAL DISEASE	246	19	11	106	38	53	42
23 RESPIRATORY DISEASE	318	95	28	248	222	251	176
24 MUSCULAR DYSTROPHY	-	-	-	1	-	-	-
25 MULTIPLE SCLEROSIS	1	-	-	30	2	2	4
26 RHEUMATOID ARTHRITIS	-	2	-	11	20	32	30
99 OTHER	661	765	203	1940	783	881	5503
TOTALS	8228	11763	1017	8216	1829	2051	19189

1983 TOTAL = 52,743 ENCOUNTERS

TABLE III

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

IMMUNISATIONS GIVEN IN CLINICS 1983

	Sabin	Triple Antigen	C.D.T.	A.D.T.	Tetanus Toxoid	Measles	Measles Mumps	Rubella
KALGOORLIE/BOULDER	992	704	477	34	11	36	213	4
WARBURTON	86	71	43	-	-	-	40	-
ESPERANCE	44	35	21	-	-	-	18	-
KAMBALDA	115	37	80	43	-	-	33	-
CUNDEELEE	6	3	5	26	22	5	-	5
COOLGARDIE	6	6	3	-	-	-	1	-
TEA & SUGAR TRAIN	17	15	9	-	7	-	5	1
TOTALS	1226	871	638	103	40	41	310	10

TABLE IV

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

CHILD HEALTH NURSING ACTIVITIES 1983

CLINIC ATTENDANCES :	0 - 1 YEAR	6896
	1 - 2 YEARS	972
	2 - 5 YEARS	970
HOME VISITS		638
HOSPITAL VISITS		1303
STYCAR SCREENING		3674
REFERRALS		140
BIRTH NOTIFICATIONS		874
ADVICE BY TELEPHONE		2640

TABLE V

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

HIGH SCHOOL NURSE SCREENING & ASSESSMENT PROGRAMME 1983

VISION	927
HEARING	454
SCOLIOSIS	922
OTHER	233
HOME VISITS	106
EMERGENCIES	92
CONSULTATIONS	6,573
PEDICULOSIS	55
SCABIES	4
IMPETIGO	0
RINGWORM	2
DENTAL CARIES	0
IMMUNISATION NOTIFICATION	40
HEALTH EDUCATION	82

REFERRALS

VISION	33
HEARING	10
SPEECH	0
CARDIO VASCULAR SYSTEM	0
E.N.T.	0
SCOLIOSIS	122
HEIGHT/GROWTH BELOW 3RD PERCENTILE	0
BEHAVIOUR DISORDER	2
OTHER	8

TABLE VI

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

PRE-PRIMARY & PRIMARY SCHOOL NURSE SCREENING & ASSESSMENT PROGRAMME 1983

FULL HEALTH APPRAISALS	989
VISION SCREENING	3,063
HEARING SCREENING	3,202
SCOLIOSIS	453
OTHER (INCLUDING HEADACHE)	9,264
EMERGENCIES	4
PEDICULOSIS	464
SCABIES	6
FIRST AID	487
IMPETIGO	3
RINGWORM	3
DENTAL CARIES	12
COLOUR VISION DEFECT	25
IMMUNISATION NOTIFICATION	110

REFERRALS

VISION	53
HEARING	43
SPEECH	34
CARDIO VASCULAR SYSTEM	22

TABLE VII

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

EXTENDED CARE ENCOUNTERS IN NORSEMAN AND RAVENSTHORPE 1983

	Ravensthorpe	Norseman
Health Surveillance	226	1767
Assessment	-	1
Shower/Dress	-	162
Exercise	15	2
Check Medication	35	37
Observation	155	1343
Podiatry	143	220

TABLE VIII

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

CONTINGENCIES BUDGET - 1983/84

SOURCE OF FINANCE	Amount of Contingency Finance	
Itinerant Health	$224,700	(72%)
Dental Health	$ 37,700	(12%)
School Health	$ 15,000	(5%)
Arthritis Nursing (W26)	$ 5,700	(2%)
Community Health Program (W27)	$ 14,600	(5%)
Child Health	$ 16,200	(5%)
TOTAL	$313,900	(100%)

Appendix VIII

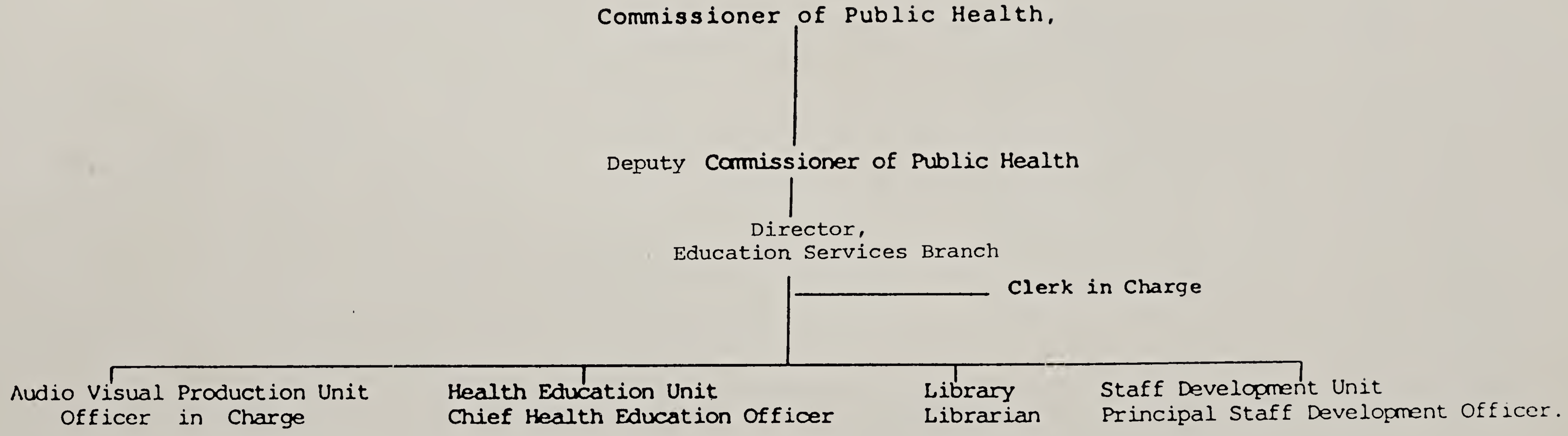
EDUCATION SERVICES BRANCH

J.M. Henzell,
M.B.B.S., D.C.H.
Acting Director,
Education Services Branch

SENIOR STAFF

Acting Director : Dr. J.M. Henzell
Clerk in Charge : Mr. P. Hemmings
Officer in Charge, Audio Visual Production Unit : Mr. P. Wilson
Acting Officer in Charge, Health Education Unit : Dr. C.R.R. Watson
Librarian : Mrs. B. Proud
Principal Staff Development Officer, Staff Development Unit : Mrs. J.M. Anstead

EDUCATION SERVICES BRANCH - ORGANIZATION CHART


Commissioner of Public Health,
Deputy Commissioner of Public Health
Director,
Education Services Branch
Clerk in Charge
Audio Visual Production Unit
Officer in Charge
Health Education Unit
Chief Health Education Officer
Library
Librarian
Staff Development Unit
Principal Staff Development Officer.

EDUCATION SERVICES BRANCH

INTRODUCTION

During 1983 the work of the Staff Development Unit became consolidated and was enhanced by the appointment of Mrs. J. Anstead as Principal Staff Development Officer. Mrs. Anstead is a skilled Nurse Educator from Sydney, and has brought with her considerable experience in management training, as well as professional development of nurses.

Dr. C. Watson joined the Health Education Unit as Medical Consultant, and during 1983 assumed administrative responsibility for the Unit. As a contrast to 1982 the Health Education Unit has had a considerable injection of funds in order to implement the Smoking and Health Project and open the Health Promotion Centre in the National Mutual Arcade. This has also resulted in additional staff appointments - in particular Ms. D. Fisher, as Co-ordinator of the smoking and Health Project, Mr. J. Cluer, Co-ordinator of the Health Promotion Centre, Ms. A. del Fante, Nurse, Ms. J. Cowling, Psychologist, and 8 additional Regional Health Education Officers.

The Library commenced its progress towards automation and concluded an agreement to be a participating member of the Commonwealth Department of Health's HEMLOC (HEALTH NET) network. Problems in filling clerical vacancies within the library considerably impaired its efficiency.

The Audio Visual Production Unit became fully staffed finally with the appointment of Mr. B. Watkins as Supervisor, and Mr. J. Aitken as Producer in the Audio Visual Section. In addition, the new television studio and audio visual studio was completed and the staff moved to new premises also within the Queen Elizabeth II Medical Centre. This has proved very satisfactory other than some problems in its location with consequent difficulty in finding it being experienced by clients.

STAFF DEVELOPMENT UNIT

Aboriginal Health Worker Training

1983 was a year of consolidation and review.

The programme schedule has been maintained in that the three Annual Health Worker Conferences were consolidated by using Departmental Resource Staff for the core content in each programme.

The Department's Aboriginal Health Worker Training programme was presented at the 53rd ANZAAS Congress held at the University of Western Australia.

An overall programme evaluation was formulated and pilot tested. No formal data to hand as yet, however interviews conducted have met the success criteria outlined in the evaluation draft.

Resource books in support of the continuing development of the Health Worker's role have been published, and several others are expected to be completed over a planned sequence of time.

The Achievement Records covering specific areas related to the practice of health have been found to be of practical value in assessing the ongoing role of the Health Worker. They are a valuable adjunct in the teaching/learning role between field nurses and health workers.

These records are developed by the working committee of Miss N. Cappaert, Miss R. Dean, Miss K. Lord, Mr. E. Garrison, Miss J. Greenhalgh and Miss J. Sheehan.

Introduction to the Field Programme

This induction programme for nurses preparing to work at field level continues. From time to time, other allied health professionals join the programme for specific input. A variety of special and practical experiences is provided. This year has seen the development of a curriculum for this specific programme. It is envisaged that the curriculum will be useful as a guide for the field induction, when staff arrive at regional level.

Liaison and Assistance in Programmes at W.A.I.T. and Ngal-a Mothercraft Home

Members of staff continue to be involved in an extensive teaching capacity with the above institutions. The teaching involves both theoretical and practical input.

Regional Inservice Programmes

These programmes have been conducted throughout the State on a planned basis. The content of programme comprises material as identified by the field staff in discussion with this Unit, and some specific input from the Department when and where it is recognized that particular needs require updating. An important initiative, at these workshops has been the Region utilizing more widely the community resources available in their specific areas.

Nurses' Annual Conference

A week long conference was held in August 1983 at the University of Western Australia. The theme and subsequent topics presented throughout the week addressed the issues of "human resources" under the conference theme "Getting Stronger as Times Get Tougher" - Maintaining Standards.

Administrative Induction Programme

A 3 day workshop for administrative/clerical staff was initiated in September 1983, and continues to be conducted on a monthly basis. The areas covered address Departmental policy, structure and function, with some visits being made by participants to related health areas. The third day reviews the component of effective communications and attitudes in the workplace. The small group workshops provide valuable interaction.

Medical Officers' Inservice

A successful week for medical officers was held in May. A review of clinical skills formed a major part of the week's activities.

Nutritionists' Inservice

A week's inservice was conducted for regional nutritionists, and held in Perth. The aspects covered related to management skills, organization and a clinical update.

Field Visits

From time to time professional staff visit the Regions throughout the State, to update the skills in relation to field nurse/health worker training.

A miscellany of incidental lectures and workshops to hospitals, Western Australian School of Nursing, Silver Chain and others, has been carried out by the professional staff within this Unit. This involvement is welcomed as it helps to give health professionals outside the Department a broader community perspective in the management of the client, both in groups and as individuals.

Programmes for 1984 are to include new initiatives as a workshop for Regional Nursing Directors - February, a planned sequence of workshops for Area School Co-ordinators (Nurse), a planned sequence for child health nurses and the introduction of a refresher course for child health nurses returning to the practice of nursing.

The latter programme will be run in conjunction with the Introduction to the Field Programme.

In conjunction with the Public Service Board, and the Australian Institute of Management, administrative personnel are being nominated for specific management courses. This is part of an ongoing management development strategy in conjunction with the Public Service Board.

Members of the professional staff represent nursing and the Department on a variety of committees, whose work ranges from consideration of publications, safety, welfare, education and ethics, and management development.

LIBRARY

1983 will be remembered as the year in which the first concrete progress towards automation of the Department's library network was achieved. Several years of negotiation culminated in an agreement for this library to be a participating member of the Commonwealth Department of Health's HEMLOC (HEALTHNET) network. This will be a major step in the development of an Australia-wide health information network which will have many benefits, both to this Department and to health professionals throughout Australia.

Within the library, two automation projects were tackled. In order to temporarily relieve the immense pressures on staff resources generated by journal circulation, the Query Update Programme mounted on the Cyber was utilized to automate the generation of circulation slips and the production of lists of journal titles, suppliers, users, addresses and missing issues. The introduction of this system has improved the speed and efficiency of journal circulation and has been appreciated by the library users.

The second and more significant automation project, was to select a suitable library management package to mount on the IBM mainframe. After many months of surveying, testing and discussing the alternatives, the decision was made to obtain the DOBIS/LIBIS system and this will be mounted during 1984. This is seen as the first step towards the development of a health information network in Western Australia, which will interface with HEMLOC (HEALTHNET). All officers of the Department will benefit from this system but the benefits will be felt most in the country areas, where service has had to be rather restricted to date.

The library staff were involved in the planning and organizing of the Fifth Biennial Australian Medical Librarians' Conference, which was held in Perth in September. Delegates attended this conference from Canada, U.S.A., New Zealand, New Guinea and all Australian States. It was very successful and was an excellent means of demonstrating the level of expertise in Western Australia. In addition, the library was represented at the following conferences and meetings:

2nd National Library Automation Conference, Melbourne.

Life Sciences Consultative Committee (N.L.A.).

Information Technology Week.

Library Promotion Council of Western Australia

Health Care Museums Committee, W.A.

Government Libraries Automation Study (P.S.B.).

Library Users Review Committee (P.S.B.).

The library also conducted a formal 'user education' programme for the health surveyors as part of their professional education seminar.

Library staff attended training courses for the on-line services, BIOSIS and ESA Quest.

The furniture and equipment obtained this year included two runs of library shelving, a Canon electronic typewriter, a visual display unit and printer.

A full-time librarian was appointed by the Alcohol and Drug Authority. The Library will still operate as a branch of this library system.

The hospitals' librarian has been unable to visit as many hospitals this year, as he has been heavily involved in the development and implementation of the automated systems. It was felt that the long-term benefits to the hospitals in having access to an on-line information system justified a slight reduction in direct service over the short-term. All reference queries, book orders, cataloguing and so on for hospital staff have been carried out by the Head Office Library staff.

The library publications have continued to be well received. "Capsules" is a popular means of being alerted to current developments in the health field. The Branch Library newsletters are also appreciated by the user groups. The most popular articles in Capsules in 1983 concerned staff burn-out and physical fitness.

Staff levels have been unsatisfactory this year, and delays in filling vacancies have created many problems.

REPORTS FROM BRANCH LIBRARIES

Community and Child Health Services

This continues to be a particularly busy Branch, which has assumed the additional responsibility of servicing the information needs of the Staff Development Unit in 1983. Agreement has been reached to transfer the library to more spacious and suitable accommodation in Salvatori House early in 1984. This will solve the long-standing problem of attempting to work in a cramped and inconvenient situation.

State Health Laboratory Services

An office for the Librarian was completed in 1983. This will provide a more suitable working environment and better security. The method of providing journal circulation was revised to eliminate excessive clerical work and speed up the flow of information.

Health Education/Occupational Health

Accommodation at this Branch is now very satisfactory. The level of staffing has however been unsatisfactory for the last part of the year, as the Library Assistant had to be transferred to Head Office to cover a more pressing vacancy. The demand for film bookings and loans has meant that this Branch is operating under undue pressure, and relief is required urgently.

State X-Ray Laboratories

The library continues to operate efficiently and is exploring new technologies to improve the service further.

Dental Health Services

The last few dental therapy students completed their course in 1983. The reduction in student training has had an effect on the use of library facilities. However, the amount of journal circulation to field staff has increased dramatically due to the educational activities of the librarian and the introduction of the automated system in Head Office.

Alcohol and Drug Authority

The appointment of a full-time librarian by the Authority has enabled the services to be expanded, and further growth is anticipated in 1984.

TABLE I

BOOKS ACCESSIONED, 1983

Public Health (Head Office)	881
Community and Child Health Services	240
Health Education/Occupational Health	60
State X-Ray Laboratory	544
State Health Laboratory Services	108
Dental Health Services	88
Alcohol and Drug Authority	219
Hospitals	1,154
TOTAL	3,294

TABLE II

INTER-LIBRARY LOANS

2.1 Interstate and Overseas Loans

	1979	1980	1981	1982	1983
Australia	707	643	350	373	430
Overseas	13	9	19	23	13
TOTAL	720	652	369	396	443

2.2 Intrastate Loans

	1979	1980	1981	1982	1983
Courier Service	1057	948	829	565	796
Other	657	653	569	623	503
TOTAL	1714	1601	1398	1188	1299

2.3 External Borrowings

	1979	1980	1981	1982	1983
Interstate & Overseas	529	519	300	314	447
Intrastate:					
Courier	1434	1528	1456	1400	1673
Other	412	500	327	234	367
TOTAL	2375	2547	2083	1948	2487

TABLE III

BOOK LOANS

Head Office	2241
Community & Child Health Services	3553
S.H.L.S.	370
HEU/OH	544
D.H.S.	512
S.X.R.L.	498
A.D.A.	430
TOTAL	8148

TABLE IV

AUDIOVISUAL MATERIALS

Format	New Accessions	Total Held	Loans
Film Library (HEU/OH)			
Films	81	362	3452
Videotapes	80	137	184
Slides	20	125	494
Kits	-	24	42
Sub Total:	181	648	4172
Alcohol & Drug Authority			
Films	2	8	19
Videotapes	2	28	49
Kits	-	15	5
Sub Total:	4	51	73
Dental Health Services			
Films	1	21	53
Videotapes	-	5	2
Audio Cassettes	6	22	12
Slides	5	24	150
Flash Cards	7	7	84
Sub Total:	19	79	301
TOTAL	204	778	4546

TABLE V

GENERAL STATISTICS

	Head Office	C.C.H.S.	S.H.L.S.	H.E.U./.O.H.	S.X.R.L.	D.H.S.	A.D.A.	Hospitals
Reference Queries:								
Brief	1674	576	556	412	110	38	114	150
Medium	864	306	103	170	70	29		75
Long	675	103	29	86	19	15		33
Computer Searches (Literature)	406	181	82	73	7	21	36	134
Photocopies Provided	44,211	7,067	2,496	1,872	112	706	814	2,016
Computerized Hits	154	50	62	12				Included in Head Office
Cataloguing Total Checked	385	91	130	20				

AUDIO VISUAL PRODUCTION UNIT

The Audio Visual Production Unit provided a photographic, art, TV and audiovisual service to a number of organisations including:

Princess Margaret Hospital,
Health and Medical Services,
Public Health Department,
Queen Elizabeth II Medical Centre,
King Edward Memorial Hospital
Repatriation General Hospital
Fremantle Hospital,
Mental Health Services,
State Health Laboratories
Various research and patient care associations and foundations.

Staff

The Unit is now fully staffed with the appointments for the year being:

Mr. Bryn Watkins	- Audio Visual Supervisor appointed 23/5/1983
Mr. John Aitken	- Script Writer appointed 16/5/1983
Mr. Ian Crimp	- Medical Photographer appointed 21/1/1983

The appointment of suitable staff is reflecting in the quality and output of work, particularly in the audio visual and television section.

Accommodation

The Audio Visual accommodation is now completed and operational. Planning has been finalised to improve the art room, stores and administrative accommodation. This stage should be completed by the end of the 1983/84 financial year.

Special Projects

A number of projects have been completed in support of the anti-smoking campaign. Planning is well in advance for a number of productions promoting a healthier lifestyle for all West Australians. These projects have involved all sections of the Unit.

Work Completed

Work completed over the period 1/1/1983 to 31/12/1983 was as follows:

Static Exhibitions	20	
Tape slide programmes	16	
Television Productions	48	Teaching 12 Clinical 36
General requests completed	3,210	
	3,294	

Total units of work raised against various organisations	64,705

HEALTH EDUCATION UNIT

During 1983 the Health Education Unit, as part of the Education Services Branch, continued to provide health education services to other Branches of the Department and to health related agencies, community organisations, schools and the public generally.

HEALTH EDUCATION FOR SCHOOLS

Support for the development of the Education Department's K-10 Health Education Syllabus continued. This includes preparing resource material and conducting workshops for teachers as requested. From the inception of this project, the Unit has been represented on the various committees advising the Education Department.

As materials became available for testing in selected areas, Health Education Officers received an increasing number of requests for resource materials. In order to meet these needs, local meetings with teachers and school nurses were arranged to provide information about the availability of resources, including those produced by the Health Education Unit.

All material prepared by the Unit for use in schools is designed to conform with the syllabus outline. In 1983 programmes on alcohol, prescription and non-prescription drugs, smoking, and nutrition were produced. A series of alcohol education workshops for teachers was conducted in metropolitan and rural areas.

Services to Country Areas

The Unit's Health Education Officer, Schools Specialist, continued the service to country areas to advise teachers and hold workshops. Regional Health Education Officers also provided support for teachers in their region.

SPECIALIST SUPPORT FOR HEALTH WORKERS AND EDUCATORS

Community and Child Health Services and Public Health Regions

Health education officers provided resources and presentation of information to workshops and seminars. Assistance was given to the Staff Development Unit in the preparation and presentation of orientation courses.

Dental Health Services

The School Canteen Seminar programme, developed in 1982, involved Regional Health education officers and dental therapists in the presentation of information to school canteen managers. This programme was evaluated and the results will be available early in 1984.

Special Clinic

The Unit continues to liaise closely with the Clinic and to provide printed information for use by health workers. Support for teachers is provided and an outline for an education programme, together with printed resources, distributed in response to requests.

Immunisation

The Unit provides appropriate publications to support the Department's work in this area. These are circulated widely throughout the State. Community awareness of the immunisation issue is considered important and campaigns at the local level receive support from Regional Health Education Officers.

Inspection Branch

The Unit's support to health surveyors of the Department continued during 1983.

Food Handling: A coloured brochure for food handlers was produced and distributed. Vinyl-coated posters were produced for display in food preparation areas. The Food Regulations were translated into foreign languages for restaurant owners and operators.

Fly Campaign: The Unit assisted Departmental staff and Local Government Authorities to produce and implement the annual mass media campaign to educate the public in methods of fly control. Publications were produced to support the programme.

Pool Sense: This programme on pool hygiene and safety was re-launched in October, 1983. Fourteen programmes were conducted in the metropolitan and country areas. The Unit provided copies of the "Pool Sense" kit to Local Government Authorities for distribution free of charge to new owners.

Pesticides

The Unit is developing a rural seminar programme on safe use of pesticides. This is being conducted in association with other branches of the Public Health Department and the Department of Agriculture.

Alcohol and Drug Education

The Unit continues to work closely with the W.A. Alcohol and Drug Authority and an inter-agency committee has been formed for the purpose of co-ordinating educational activities.

A booklet on solvent abuse was produced for use by health workers and educators.

Drug Assessment Team

Representatives from the National Drug Education Committee visited the Unit in April of this year. They met with members of staff and observed group work in two metropolitan regions.

PUBLICATIONS

The Unit continued to produce and distribute health education publications for health workers, teachers, students and to the public generally. Publications were provided to support programmes such as the metropolitan fly campaign, food handling, school canteens and pool hygiene.

Information on child development and health is distributed to Community and Child Health Services. Representatives from the Health Education Unit, Child Development Centre, Community and Child Health Services and the Princess Margaret Hospital are selecting topics for publications which can be prepared for joint distribution. This will ensure uniformity of information given to parents on aspects of child development and health.

The production of News and Views continues and the journal is mailed to readers throughout the State.

The preparation of a series of fact sheets on health issues has commenced.

Distribution figures for the Unit's publications for 1983 totalled 798,549.

ST. GEORGE'S HALL

St. George's Hall was used during 1983 by the Active Therapy Group with representatives from the Civilian Maimed and Limbless Association and the Paraplegic/Quadraplegic Association. This programme used the theatre for the purpose of integrating the disabled with a theatre group. A drama for the public was produced.

The Hall was also made available for meetings conducted by voluntary organisations.

OVER-THE-COUNTER AND PRESCRIPTION DRUGS

A literature search was commenced to provide appropriate information to extend the work begun by the Unit in association with Rotary. This detailed review of available information about the use of over-the-counter and prescription drugs will provide the basis for future programmes.

STAFF DEVELOPMENT

Staff Development Week for 1983 was held during May of this year to coincide with the 1983 ANZAAS Conference. The main themes of staff training were Planning and Evaluation and the Unit was able to draw on the expertise of visiting overseas health educators, notably Professor Donald Iverson and Professor Sol Gordon. All staff of the Unit participated in the planning and discussion of future projects.

SELF-CARE PROGRAMMES

Staff workshops were held to facilitate staff involvement in planning a self-care programme. A manual is being produced as a result of these workshops and this will be available for health education officers to use with groups in their regions. It will also be available to health workers engaged in community development programmes.

MIGRANTS

The health education officer responsible for health education for migrant groups continued to arrange the translation of information on health issues. A nutrition education programme for students and support for an intercultural studies programme for tertiary students were initiated by this Officer. Assistance was given to a student from Papua New Guinea who was participating in the Australian Development Assistance Bureau Community Health Administration Course. This involved introductions to health agencies, the provision of resources and some practical health education experience.

REGIONAL ACTIVITIES

Regional officers continue to receive requests from health, education and welfare workers for advice and assistance in planning education programmes. These include addressing local service clubs and arranging information/discussion programmes on issues relating to health education for community and church groups. This type of activity is undertaken routinely in the metropolitan area and in country regions where regional health education officers have been appointed. Each community has different needs and the health education officers respond to these needs by providing appropriate programmes and resources.

Metropolitan Regions

Central Metropolitan Region

Following initiatives taken in 1982 the Regional Officer has continued to work closely with representatives from Independent Schools to develop a growth and development programme.

A workshop held in May of this year examined the problems which often arise when incorporating controversial issues into the curriculum.

Kwinana/Rockingham Region

The "Home Visitor's Training" programme continued.

This year meetings with representatives from the Kwinana Health Centre, the Public Health Department, Kwinana Town Council and Government agencies were arranged to establish the need for a 'home support' service. A public meeting was held to further assess the need. As a result an organisation has been established to implement and maintain a voluntary service.

A programme on child care for homemakers and child care workers was conducted. The programme covered areas of child growth and development and emotional needs. A similar six-week course was conducted with a C.Y.S.S. group to provide information and develop skills for girls who wish to undertake child care as an occasional task.

Parent/child communication workshops continued in this region.

North East Metropolitan Region (Midland)

A communication skills programme was conducted for the staff of the Swan Districts Hospital. This was an eight-week programme.

School Canteen Seminars: The Regional Officer continued to have responsibility for these programmes. Support material for teachers, classroom activities and recipe suggestions were prepared by this officer.

Self-care programmes were conducted in the region. These were used to provide practical guidelines for a proposed health skills manual.

North West Metropolitan Region (Warwick)

The officer provided canteen seminars for canteen managers in the Region. 'Pool Sense' programmes were conducted in association with Local Government and Public Health Department staff.

Group Leadership Skills: In response to requests from day-care co-ordinators an 8-week programme was conducted by the officer in this Region. The aim of the programme was to develop group leadership skills in promoting group involvement and understanding group processes. The programme was evaluated and was shown to be successful.

South West Metropolitan Region (Fremantle)

The Health Education Officer in this Region continued to support teachers in primary and secondary schools. Topics covered included growth and development, alcohol and drug education.

Programmes on health education and social issues were continued with junior recruits from H.M.A.S. Leeuwin and student nurses.

A public awareness campaign on the importance of adult immunisation is currently being planned.

South East Metropolitan Region (Armadale)

The officer for this Region was responsible for organising the programme which re-launched the 'Pool Sense' programme for the 1983/84 season.

Assistance was given to the Country Women's Association, Brookton, to plan and implement a one-day seminar on health care. A session on stress management was conducted for this programme.

Support is given to groups who request assistance in planning and conducting leisure activities.

Home Help: A meeting between the Regional Officer and representatives from the Public Health Department, Local Government and health agencies was conducted to discuss a proposal to provide a 'Home Help' service in the region. Subsequently a working party established the need for such a service. Planning is progressing.

Country Regions

South West Region

Busselton: Smoking programmes in primary schools were conducted on a continuing basis. These programmes formed the basis for a smoking programme for schools which was produced by the Unit and conducted in schools in the south West of the State.

Community development programmes continued and a one-day seminar held at Ravensthorpe in June examined the issue of family relationships.

The Regional Health Education Officer contributed to a training programme held at Holyoake.

Mandurah: Liaison with schools, providing programmes and resources continued.

Planning has commenced for a two-year community health education programme. This initiative is the outcome of a conference attended by local health workers.

Information is provided to the community through a regular column in the local newspaper. The Regional Officer provides the material for this community service.

Geraldton Region

The Health Education Officer for the Geraldton Region retired in July of this year. A replacement was appointed in October, 1983.

Community development, school programmes and liaison with health workers continues. Questionnaires completed by Health Centre staff resulted in requests to the Unit to supplement resources in areas of need, particularly material relating to mental health.

Pilbara Region (South Hedland)

A programme for apprentices was planned and conducted with the Hamersley Iron minesite, Paraburdoo.

Teacher in-service was conducted to promote health education in primary and secondary schools.

Awareness of health issues was promoted through local radio programmes and newspaper articles.

Eastern Goldfields Region (Kalgoorlie)

During 1983 a health education officer was appointed to the Eastern Goldfields Region.

The officer supports local health workers and has extended the work of the Unit by providing exhibitions and education material and programmes in the region.

RESEARCH AND EVALUATION

A major research project with primary schools in the State for the purpose of providing data for a smoking programme was conducted by the Unit's research officers. Programme evaluation was conducted in relation to the 'Pool Sense' and 'Your School Canteen' programmes. Health education officers prepared and conducted pre- and post-test evaluations of their programmes.

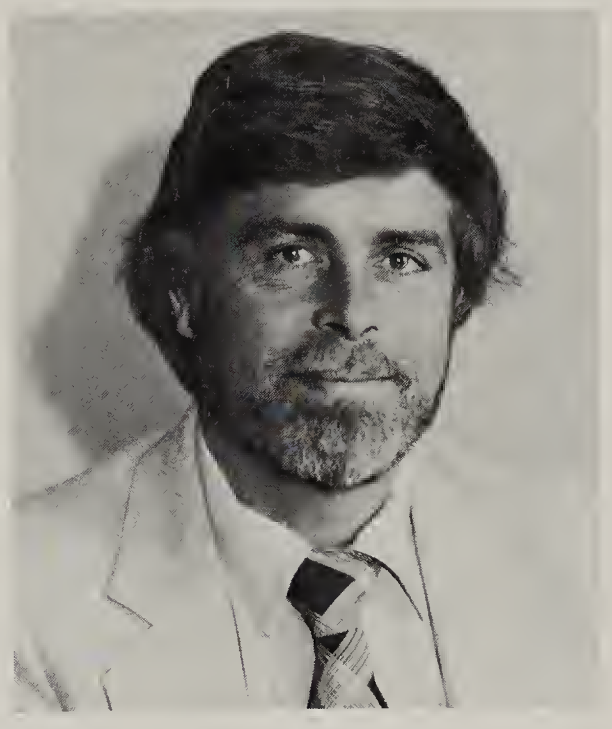
Appendix

INSPECTIONS SERVICES BRANCH

SENIOR STAFF

Director : Dr. R.S.W. Lugg
Medical Officer : Dr. C.D.J. Holman (seconded from Executive Branch from 5/9/83)
Food & Nutrition Officer : Mr. M.P. Jackson
Waste Disposal Engineer : Mr. S.B. Hansen
Chief Health Surveyor : Mr. R.C. Zehnder
Deputy Chief Health Surveyor : Mr. R.W. Sweetman
Senior Health Surveyor (General) : Mr. R.L. Moss
Senior Health Surveyor (Food & Liquor) : Mr. A.L. Layton
Senior Health Surveyor (Public Buildings) : Mr. K. Watt
Senior Health Surveyor (Meat) : Mr. G.F. Jeffries
Senior Health Surveyor (Waste Management) : Mr. B. Devine
Senior Health Surveyor (Research & Special Projects) : Mr. W.G. Jolley

R.S.W. Lugg,
B.Sc., M.B.B.S., M.P.H.
Director

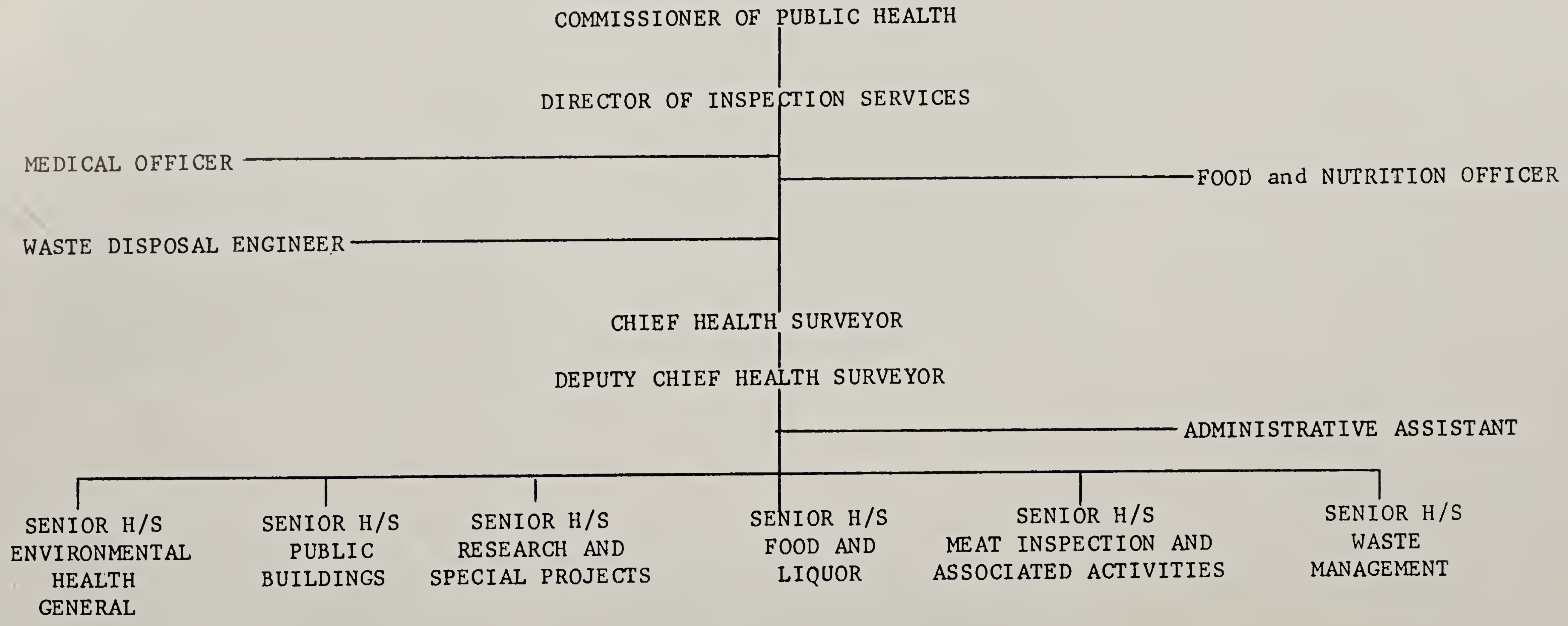


S.B. Hansen,
B.Eng.(Chem.), M.I.E. Aust.
Waste Engineer

M.P. Jackson
B.Sc. (Hons.) A.I.F.S.S.T.
Food and Nutrition Officer

R.C. Zehnder,
M.R.S.H., M.A.I.H.S.
Chief Health Surveyor

INSPECTION SERVICES BRANCH


COMMISSIONER OF PUBLIC HEALTH
DIRECTOR OF INSPECTION SERVICES
MEDICAL OFFICER
FOOD and NUTRITION OFFICER
WASTE DISPOSAL ENGINEER
CHIEF HEALTH SURVEYOR
DEPUTY CHIEF HEALTH SURVEYOR
ADMINISTRATIVE ASSISTANT
SENIOR H/S ENVIRONMENTAL HEALTH GENERAL
SENIOR H/S PUBLIC BUILDINGS
SENIOR H/S RESEARCH AND SPECIAL PROJECTS
SENIOR H/S FOOD AND LIQUOR
SENIOR H/S MEAT INSPECTION AND ASSOCIATED ACTIVITIES
SENIOR H/S WASTE MANAGEMENT

INSPECTION SERVICES BRANCH

INTRODUCTION

1983 was the first full year of operation of the Branch as a formal structure within the Department. Organisational consolidation continued, including the introduction of a comprehensive budget dealing with the overall activities of the Branch.

Two major staff changes occurred during the year. The Food and Nutrition Officer, Mr. J.R. Edinger, retired after 11 years of service to the Department. His experience, loyalty and wise counsel were greatly valued, and his achievements in food legislation development and administration were well known and appreciated at local, state and national levels.

He was succeeded on 24 January 1983 by Mr. M.P. Jackson, previously Principal Chemist with the Food Administration Section of the Commonwealth Department of Health in Canberra. The Department was extremely fortunate to secure the services of an officer of the calibre and administrative experience of Mr. Jackson. He has launched himself into his duties with energy and enthusiasm, some of which can be gleaned from a perusal of his report.

The other change of note is the additional medical support to the Branch which has become possible with the recruitment to the Department of Dr. C.D.J. Holman. Dr. Holman's services have been made available to the Branch on a half-time basis since 5 September 1983, and this has proved of great assistance in view of the increasing demands placed upon the Branch.

Dr. Holman's special training and interest in epidemiology has led to his making valuable contributions to epidemiological aspects of the Branch's environmental health and communicable disease control activities, notably in a co-operative study which the Branch commenced with the State Health Laboratory Services and the Metropolitan Water Authority into the occurrence and significance of the bacterium Aeromonas hydrophila in water supplies.

There was a general increase in the work-load of the Branch during the course of the year, an important component of which resulted from a number of cases of involvement in local authority matters. The Chief Health Surveyor has referred to this aspect in his comments, and more detail is given in the report of the General Section.

The most dramatic example of this involvement in local authority matters was the inquiry into public health in the Shire of Carnarvon, which is the subject of a special report appearing immediately following this introduction. This inquiry involved a great deal of the time of the Director and a senior health surveyor of the Branch. However there is little doubt that the outcome will be of great importance for the future of local government's involvement in environmental health throughout the State.

In retrospect it would appear that the Department's surveillance and advisory functions relating to local authorities' responsibilities in health administration have not for a number of years received the degree of emphasis which they perhaps should have. Adequate and consistent two-way communication between the Department and local government is required, otherwise confusion can arise as to the exact duties of a local authority under the Health Act, and what is needed for the proper discharge of those duties.

It must be a responsibility of the Branch to maintain the necessary contact with local authorities and to provide timely advice and assistance so that problems can be detected and dealt with while they are still capable of easy resolution. The Chief Health Surveyor in his comments makes reference to remedial measures which have been put in motion in this regard. It is to be hoped that these measures will obviate the need for future formal inquiries of the kind that occurred with Carnarvon.

Close liaison continued over the year with the Australian Institute of Health Surveyors (W.A. Division) on a variety of matters, and representatives of the Institute sat on Departmental working parties on model food legislation, and on wastewater disposal systems (the latter being particularly concerned with regulations relating to septic tanks). From 30 October to 4 November, Perth was the venue for the Tenth National Conference of the Institute, and the Department contributed considerable organisational and financial assistance for the hosting of this highly successful event.

The Branch and the Institute also worked closely together on a health surveying manpower survey which is being undertaken as part of an overall review of arrangements for education in environmental health and the professional practice of health surveying. Returns from a manpower questionnaire which had been sent to all known health surveyors in 1982 were coded and processed by the Department's computer. Preliminary one-way analyses of the results were completed. In addition, a pilot questionnaire on the staffing of local health departments was test-mailed to a small group of chief health surveyors in April. The pilot was designed to collect information on existing staffing patterns and projected future needs.

From 7 November 1983 the Director was assigned other duties as Acting Assistant Commissioner of Public Health, and Dr. D.G. Hicks was Acting Director for the remainder of the year. During this period the Branch became actively involved in the Department's strategic planning programme, and a draft corporate plan for the Branch was prepared.

In what follows the Food and Nutrition Officer, Waste Disposal Engineer and Chief Health Surveyor report on the work of the Branch in their areas of responsibility. A special report on the inquiry into public health in the Shire of Carnarvon is also appended.

INQUIRY INTO PUBLIC HEALTH IN THE SHIRE OF CARNARVON

In 1983 an unusual and important event occurred in the history of health administration in Western Australia. This was the holding of a formal inquiry under the Health Act into public health within a local authority.

It arose following representations from some ratepayers of the Shire of Carnarvon and a number of reports from officers of the Department to the Commissioner of Public Health, Dr. J.C. McNulty.

Discussions were held with the Local Authority but there were further public expressions of concern about the staffing of the Health Department and the Local Authority's administration of the Health Act. After considering the matter, the Commissioner came to the view that health surveying services in the Shire would not be put on a proper footing until a full investigation had been held and recommendations for the proper functioning of the Health department were made and implemented to the extent necessary.

Accordingly, the Inquiry was constituted on 1 June, pursuant to Section 13 of the Health Act, and comprised the following:

Dr. R.S.W. Lugg - Chairman

Mr. M.J. Harding
Mr. B. Devine - Members

The Secretary of the Inquiry was Mr. L.M. Whitely.

The Inquiry was conducted in private and considered a number of written and oral submissions. It submitted its report on 30 November, 1983 and this was subsequently tabled in Parliament and printed as Parliamentary Paper No. 565.

The Inquiry set out a number of conclusions and recommendations in its report. It found that the Shire Council had failed to discharge its responsibilities under the Health Act in a satisfactory manner, and recommended that the Commissioner of Public Health intervene and take over the administration of the Act in the Shire for a two year period.

The Minister for Health referred the report to Cabinet for its consideration, and on 20 December, 1983 the Lieutenant-Governor and Administrator in Executive Council authorised the issue of an order for the dismissal of the Shire Council. Mr. R.E. Dymock was appointed Commissioner pro tem for the Shire of Carnarvon.

FOOD AND NUTRITION

The prime responsibility of this position is to provide technical advice on food standards and in particular to maintain the Western Australian Food & Drug Regulations. This involves technical advice to the Minister, the Commissioner, Parliament, industry and the public generally.

Food legislation must keep up to date with the technology in industry and the consumers expectation of products, their safety and how they are to be labelled. Therefore food standards are in a continual stage of development, amendment and review. In order to achieve uniformity of food legislation throughout Australia formulation of food standards is the responsibility of the National Health and Medical Research Council (N.H.& M.R.C.) and the Food and Nutrition Officer is responsible for providing a co-ordinated input into the development of such model food legislation. This is achieved utilising the expertise of those members of the Food and Drug Advisory Committee which is responsible for recommending amendments to the Food and Drug Regulations. The Food and Nutrition Officer has a direct contribution to the N.H. & M.R.C. as the Western Australian representative on the N.H. & M.R.C. Food Standards Committee. Three meetings of the Committee were held during 1983.

In view of the increased tendency toward marketing of foods throughout Australia, a special N.H. & M.R.C. Working Party on food labelling has been established to facilitate uniform administration on food labelling by States and Territories. As Chairman of this Working Party, the food and nutrition officer is integrally involved in this work. The Working Party is composed of chief food officers from States and Territories.

FOOD REGULATIONS

Revised regulations were prepared for the following foods during 1983:

Artificial Sweetening Substances - providing for the use of aspartame, labelling provisions and bases used in these tablet, powder or liquid preparations.

Confectionery - updating the existing Regulation and providing specific labelling of products such as liqueur confectionery.

Fruits - for mixed dried fruits, imitation fruits etc.

Formula Dietary Foods - providing compositional and labelling requirements for this rapidly expanding class of food.

Low Joule Foods - detailing permitted additives, energy yields of ingredients and specific labelling requirements.

Carbohydrate Modified Foods - providing for the use of sorbitol, mannitol, and glycerol in certain foods.

Spirits and Liqueurs - updating the existing Regulation, bringing the minimum alcohol content of brandy, whisky and rum into conformity with other States and requiring a declaration of the alcohol content on all spirits and liqueurs.

The Food and Drug Advisory Committee have approved a further series of amendments to the Food and Drug Regulations in accordance with the recommendations made at the 94th - 96th Sessions of the N.H. & M.R.C.

These amendments will be adopted with the model food standards regulations.

In addition, a series of regulations were gazetted to the Meat Inspection and Branding Regulations regarding branding of meat and the scales of fees paid for inspection of meat at country abattoirs.

The Food and Nutrition Officer has a close working relationship with the Food and Liquor Section of the Branch and therefore there has been an integral involvement in many of the items set out in the report of that Section, for example the assessment of food labels, market basket surveys and recalls of contaminated foods.

The following matters warrant particular mention.

ADOPTION OF MODEL FOOD LEGISLATION IN WESTERN AUSTRALIA

Following the development of a Model Food Act under the auspices of the Health Ministers Conference, a special working party was established to propose amendments to the Health Act in order to adopt the Model Food Act in Western Australia. The intention of the Model is to achieve uniform food legislation throughout Australia.

The working party took into consideration the Queensland Food Act 1981 and a Victorian Bill and have submitted proposals to the Parliamentary Counsel. This matter has a high priority.

With respect to the adoption of the model food standards regulations, the Food and Drug Advisory Committee has recommended that these be adopted in Western Australia wherever possible. The Committee has considered those instances where deviations from the Model are anticipated and has made recommendations on these matters to enable the preparation of food regulations based upon the model.

It is intended that food legislation be dealt with separately than legislation concerning drugs. Separate parts of the Health Act and separate sets of regulations will be established for foods and drugs.

Goat's Milk

The N.H. & M.R.C. at its 92nd Session in October 1981 recommended that unless specifically exempted by a health authority, unpasteurised goat milk or goat milk products shall not be sold for direct human consumption. A survey was conducted of unpasteurised goat milk in Perth, which tended to support the case for pasteurisation. The Food and Drug Advisory Committee (F&DAC) recommended that goat milk should be pasteurised. However a delegation from the industry advised that mandatory pasteurisation would cause economic hardship to the industry and maintained that some goat dairies could produce goat milk with consistently low microbiological counts. A second survey was conducted and advice was sought from other State and Territory Departments of Health on their policy regarding the sale of unpasteurised goat milk.

The F&DAC has now proposed that unpasteurised goat milk may be sold provided it meets the N.H. & M.R.C. Microbiological Standard. Similarly pasteurised goat milk will be required to meet the corresponding microbiological standard for pasteurised goat milk.

Mechanically Deboned Poultry Meat

There are currently no microbiological standards for mechanically deboned poultry meat. A major poultry producer installed advanced machinery to prepare this product. Using stringent restraints on processing and hygiene a salmonella free product could not be consistently produced. Several batches were condemned. A series of meetings was convened to decide upon a microbiological standard appropriate to this product. All microbiological data was referred to the N.H. & M.R.C. Food Microbiology Subcommittee with a request to prepare a microbiological standard for application throughout Australia.

Low Alcohol Beer

The N.H. & M.R.C. Food Standards Committee noted the development of a low alcohol beer in Western Australia and considered that the existing standards for beer required review. The Committee further requested that the declaration of alcohol on low alcohol drinks be reviewed. This review was carried out by the Food and Nutrition Officer and a revised standard submitted to the N.H. & M.R.C.

Health Education Unit Food Publications

The Food and Nutrition Officer was involved in the preparation of several publications concerning food. These were formulated by the Health Education Unit.

Mercury Contamination - Princess Royal Harbour - Albany

Routine surveys showed fish taken from Princess Royal Harbour in Albany had elevated mercury concentrations, some samples exceeded the maximum permitted concentration for mercury in the Food and Drug Regulations and virtually all samples had mercury concentrations in excess of that expected for the species. Further surveys showed elevated levels of mercury in cockles and sediments. A Working Group was established involving the Departments of Fisheries and Wildlife, Environment and Conservation, the Government Chemical Laboratories and officers of this Department to determine the source of the problem and recommend interim and long term measures to advise the public, remove the source of contamination and the contaminated sediments. As Chairman of this Working Group the Food and Nutrition Officer has been particularly involved.

Cadmium in Shark Bay - Pearl Oysters

Since the finding that pearl oysters in Shark Bay were found to contain elevated levels of cadmium, work has been carried out in association with other related Departments and the University of Western Australia to determine the source of these high levels and to decide on an appropriate action.

Representation

In addition to participation on the N.H. & M.R.C. Food Standards Committee, and other committees specified in this report, the duties of this position require participation as Departmental Representative on the Local Health Authorities Analytical Committee, the Food Technology Association of W.A. and the W.A.I.T. Advisory Board on Home and Consumer Studies.

Lectures

As part of the responsibilities is to give technical advice to industry, consumers and health professionals on aspects relating to food legislation a number of lectures were given during the year to such groups as the World Veterinary Congress, the Australian Institute of Health Surveyors, the Association of Australian Dietitians, the Food Technology Association of W.A., The Australian Dairy Institute, the Association of West Australian Bread Manufacturers and to students at the W.A.I.T.

Appreciation

Since taking up this position in January 1983 I have received a great deal of assistance from officers of the Inspection Services Branch and in particular Dr. R.S.W. Lugg, Director of the Branch and Mr. A.L. Layton, Senior health surveyor Food and Liquor Section. I would like to take this opportunity of expressing my sincere appreciation for that assistance.

WASTE MANAGEMENT

The disposal of solid and liquid waste controlled under the Health Act continued to improve during the year and has now reached a satisfactory stage. This is not to say that further improvement is unnecessary as the long term policy of the Department is treatment of all wastes before disposal. However with current landfill sites being properly managed this cannot presently be justified for economic reasons.

Solid Waste

During 1983 both the Belmont and Swan sanitary landfill sites were closed. Over a number of years concern over pollution of the Swan River from these sources had been expressed by many Departments and individuals and the closures have ensured that no tips now exist in the vicinity of the river and this is highly unlikely to occur again.

The City of Belmont and the Shire of Swan now deposit all waste at the regional site in Toodyay Road, Red Hill together with the Shires of Bayswater and Bassendean.

These four local authorities, together with the Shire of Mundaring, formalised the formation of the Eastern Metropolitan Regional Council on June 30, 1983, making it the first such council to be formed under Section 359 of the Local Government Act.

The Public Health Department strongly favours regional councils as an alternative to a Metropolitan Waste Disposal Authority as this is seen as the best way of ensuring proper control of waste disposal with local authorities having operational and economic control of the operation.

The North West Zone, comprising the cities of Perth and Stirling and the Shire of Wanneroo continued their request for having a piece of land known as Superlot 17 north of Burns Beach gazetted for landfill purposes to replace the Pinjar Road site in Wanneroo and provide future tipping space for the cities of Stirling and Perth. Due to environmental concern it was found necessary to employ consultants to prepare an Environmental Review and Management Programme (ERMP) for the site and this was completed late in the year and was subsequently released for public comment.

The City of Stirling handed over the operation of their baling plant in Balcatta Road, Balcatta to private industry.

Although opposition was encountered from individuals fearing large scale increases in charges the change has provided improved management practices and no change in charges has yet been encountered.

Some local authorities in the South East and South West Zones have joined to investigate the use of the Canning and Melville sites in a combined venture to ensure the best environmental and economic use of the sites.

Consultants were employed and a report is currently being considered before further development takes place.

Other local authorities in the metropolitan area continued operation with little or no changes to the previous year.

Liquid Waste

A milestone in liquid waste disposal was reached with the introduction of the Health Act (Disposal of Liquid Waste) Regulation 1983 which came into effect on March 1st.

The regulations ensure control of the waste "from cradle to grave" by specifying the conditions of the waste to be made suitable for transport and disposal by the producer, carted in a proper manner from the producer to a specified site and disposed of in a controlled way on the site.

A four copy docket system ensures that producer, carter, site operator and the Public Health Department have knowledge of the waste from production to the final destination. Together with the closure of all sites considered undesirable in regard to ground water pollution, the regulations have improved liquid waste disposal in Perth from totally unacceptable to a system as good or better as any Australian state and most developed countries in the world. Future improvements now concentrate on development of treatment processes to replace the controlled dumping currently employed and change in legislation to give greater government control over the methods used.

Hazardous Wastes

Certain wastes cannot be dumped on solid and liquid waste disposal sites due to their toxicity and potential environmental effect.

Chlorinated Hydrocarbons, pesticides and heavy metals are in this category.

These wastes are all handled on an individual basis and the Public Health Department has over the last few years established a service for advice and supervision on the correct disposal procedures to be employed in these cases. By centralising this service which was previously carried out on an ad hoc basis it is now possible to recycle the maximum amount of these wastes before selecting secure methods of disposal. Apart from removing toxic materials from the environment this has also had an economic benefit to recyclers and Western Australia in general.

Liquid Waste Volumes

Non-biodegradable liquid wastes are all deposited at Kelvin Road, Orange Grove, unless specific permission or instruction has been given by the Commissioner of Public Health for treatment and/or disposal elsewhere. This is the case for many hazardous wastes which are handled as set out above. Approximate volumes of non-biodegradable liquid wastes dumped and recycled are shown below.

Wastes containing

Acids and Alkalis	16 Megalitres per year to Kelvin Rd, Orange Grove
Oil, sludges, emulsions	8 Megalitres per year to Kelvin Rd, Orange Grove
Cyanides etc., pre-treated	1 Megalitre per year to Kelvin Rd, Orange Grove
Solvents, paints, resins	1 Megalitre per year to Kelvin Rd, Orange Grove
Others	10 Megalitres per year to Kelvin Rd, Orange Grove
TOTAL	36 Megalitres per year to Kelvin Rd, Orange Grove
Oils	10 Megalitres per year recycled
Chlorinated Hydrocarbons, Pesticides etc.	1 Megalitre per year recycled
Acids and Alkalis	10 Megalitres per year recycled
Others	1 Megalitre per year recycled
TOTAL	22 Megalitres per year recycled
Hazardous liquid waste general TOTAL	1 Megalitre per year destructed

HEALTH SURVEYING

INTRODUCTION

The following comments on staff activities have been compiled by senior officers under the director of the Deputy Chief Health Surveyor, Mr. R.W. Sweetman.

These reports made by the senior officers represent but a brief resumé of the more interesting facets with which the staff were involved during the year and in addition reflect the variety and extent of a number of routine and new monitoring programmes conducted by the Branch.

It is not possible to present a full spectrum of all activities, however it is pleasing to observe that despite limited staff resources there has been no diminution of surveillance services compared to previous years and a number of new initiatives have been entered into.

Of particular notice is the fact the Branch officers have developed a more comprehensive advisory service in regard to sanitation standards in aboriginal communities located in various parts of the State. This service has been developed conjointly with the respective Directors of Public Health Regions. If predicted Commonwealth funding becomes available, a more intensive involvement in this field will be possible in the 1984 period.

It is a stimulating experience to observe the impact which special funding has on specific public health problems. This type of funding allows the formation of a more meaningful service and is best illustrated by the achievements of the Commonwealth and State funded programme for the monitoring and control of Australian encephalitis.

The year under review was notable for the emergence for the need to conduct a number of enquiries into the administration and staffing situations of several local health authorities, of which the enquiry into public health in the Shire of Carnarvon was the most publicised. It is pleasing to record that in most instances the problems were resolved at the local level.

Nevertheless, these occurrences emphasised some shortcomings in not only local government administration, but within the Branch's organisational arrangements also and remedial measures have been put into motion to overcome these anomalies.

There were no staff increases during the year. A vacancy which occurred was filled by an additional female officer. A number of officers were also recommended for promotion. The senior staff assisted in the compilation of a submission for organisational changes in the Branch. This submission is now being considered by the Public Service Board.

In conclusion, I believe that the general achievements in health surveying throughout the year were considerable and I wish to record my appreciation to all officers for their encouragement and co-operation for the period under review.

FOOD AND LIQUOR SECTION

Food General

Investigation of marketing of food products for compliance with the Food and Drug Regulations continued during 1983 with regard to wholesomeness, compositional standards, additives and labelling.

Sampling

Routine and special investigations continued throughout the year. A total of 2,486 samples for bacteriological and chemical examination were submitted (Appendix I).

Total non-food samples (miscellaneous) submitted for determination were 8,821. (Appendix II).

Investigations and Special Activities

Investigation and assessment of statewide food complaints and co-ordination of related activities resulted from 634 complaints being received (Appendix III).

Market Basket Survey (National)

Three seasonal sampling programmes were effected, involving a selected variety of foods from particular areas for determination of pesticide and metal residuals.

Poultry Processing Surveillance

Monitoring and surveillance continued at the major poultry processing establishments. The programme has maintained a reduction in related food poisoning outbreaks.

A programme for mechanically deboned chicken meat has been instituted.

Heavy Metals in Children's Cosmetics

Following problems experienced in 1982, liaison with importers continued.

Samples supplied by importers were submitted for analysis to ensure compliance with requirements prior to sale.

Weekend Market Survey

With the spread of this concept of food outlet, random visits were undertaken to metropolitan and adjacent establishments to ensure that accepted food handling practices were observed.

Metropolitan Market Trust

An extensive investigation was carried out regarding health inspection services at the market.

With existing conditions and expected developments as a basis, the feasibility of having a Departmental health surveyor assigned to the market on full time duty is being studied.

Mercury Content in Fish

The sampling programme to determine the mercury content in fish has been varied to include raw and cooked fish from retail outlets in the country and metropolitan area and relevant data continues to be shared with the National Health and Research Council.

Mussels

Local mussels are sampled every two weeks and submitted for heavy metal determination.

Random sampling of unprocessed mussels is also effected for microbiological examination.

Canned Champignons

Taiwanese canned champignons were subject to an Australia-wide recall following advice from the Commonwealth Department of Health that cases of botulism resulted from the consumption of this product.

A State-wide recall of all brands was co-ordinated involving local authorities, retailers, wholesalers and state distributors.

Of the 43 samples submitted for microbiological examination all proved negative and all stocks were released for sale.

Imported Dates

Various consignments of pitted dates were held under Commonwealth Department of Health control, suspected of being substandard through contamination with foreign matter.

All samples were microbiologically satisfactory but foreign matter detected in many samples included fragments of soil, vegetation, animal hair, insects and date seeds. 145,475 kgs were rejected as substandard.

Food Hygiene Advisory Service

This advisory service continued and included schools, State Library, Nedlands Baths, Community Welfare Department hostels, technical colleges and other government authorities. The service includes plans and specification examinations, on-site inspections and professional advice.

Health Education

The service in the form of films and lectures has continued, and has included organisations such as schools, catering establishments, food demonstrators, a food processing plant, Australian Dairy Corporation and Local Authority Regional Liaison Groups.

Cadmium Content - Shark Bay Pearl Oysters

Sampled oysters indicated cadmium levels in excess of the prescribed limit for human consumption, although mercury and zinc levels were acceptable and there is no industry in the immediate area.

A wider assessment of the problem is being carried out in conjunction with the Department of Conservation and Environment and the Department of Fisheries and Wildlife.

Food Legislation

Work is continuing in reviewing current legislation with direct input to the National Health and Medical Research Council working party in the preparation of Uniform Food Hygiene Regulations and Model Food Act.

Royal Agricultural Show

Food standards and food hygiene provisions were kept under surveillance and corrective action implemented where necessary at this and five other functions at the Royal Agricultural Show showgrounds in Claremont. All operators with food are advised of Departmental requirements prior to commencement.

Operators were generally co-operative and no major problems were encountered.

Overseas Enquiries

Enquiries from overseas concerning State regulations and importing requirements have increased. These have included personal representation from New Zealand and Sri Lanka.

Enteric Disease Notifications

To streamline and expedite investigations arrangements have been made to have the State Health Laboratory Service notify local authorities direct of all human isolations of enteric diseases.

Royal Commission - Liquor Law

Following the Departmental submission, senior health officers attended the Royal Commission into liquor laws 1983 to discuss its details in depth together with the subject of liquor adulteration.

Imported Foods

Regular examination of imported food involved officers at Fremantle Wharf, Perth Airport, Kewdale Rail Terminal and various depots receiving containerised food products throughout the metropolitan area.

Samples Drawn for Analysis:-

Bacteriological	1,372
Chemical	1,566
Electrophoresis	10
	2,948

Containers of Fish Examined:-

Fremantle Area	272
Perth Metropolitan Area	257
	529

Total weight of fish = 5,972,871 kg (1982 = 4,688,681 kg).
Fees raised for inspection of fish = $19,972.35.

Condemnation of Fish and Other Foods

Fish

Mussels	6.16 kg
Hake Fillets	5.00 kg
Salted Herrings	3.50 kg
Rollmops	6.19 kg
Swordfish Steaks	504.00 kg
TOTAL =	524.85 kg

Foods

Brie Cheese	410.30 kg
Cheese	860.00 kg
Canned Snails	10.20 kg
Pitted Dates	25.00 kg
Mixed Frozen Vegetables	180.00 kg
TOTAL =	1,485.50 kg

Desiccated Coconut

Desiccated coconut is routinely sampled for bacteriological examination and analysis for methyl bromide and sulphur dioxide.

Salmonella senftenberg was isolated from two containers, each involving 270 x 100 lb bags.

Bulk Sugar Discharge

Surveillance as required is carried out at the operations new location at the CSBP Jetty, Kwinana.

Prawns

All imported prawns continue to be physically examined at Fremantle Wharf and Perth Airport and samples submitted for microbiological examination. Cooked and peeled prawns are examined on behalf of the Commonwealth Government.

Oysters and Shellfish

Imported oysters and shellfish are monitored for microbiological quality and heavy metals. Continuing surveillance is reflected in improved quality and a reduction in related problems.

Wharf Procedures

Food containers continue to increase in quantity, with 93 more this year than in 1982.

Some minor problems have been encountered with occasional temperature fluctuations but the system is considered better than the previous discharge system for product quality.

Routine inspections have been maintained at the North Wharf and Victoria quay canteens, Passenger Terminal Function Centre, Port Beach Kiosks and Quay Ablution Blocks.

Livestock Export

All wharf areas used during the loading of live sheep are kept under surveillance to ensure that satisfactory standards of cleanliness are maintained.

There were 94 vessels loaded with live sheep during 1983 2 fewer than 1982.

Liquor

The normal surveillance of liquor outlets continued during this year with approximately 1,100 licensed premised being visited.

Liquor outlets inspected:-

	Town	Country	Total
Hotels	164	168	332
Taverns	150	59	209
Ltd Hotels	29	23	52
Winehouses	11	-	11
Cabarets	21	1	22
Restaurants	165	29	194
Theatres	3	-	3
Clubs	168	97	265
Packets	-	-	-
Canteens	2	3	5
Aus Wine lic.	-	-	-
Function Permits	3	5	8
Catering	-	-	-
Others (R.A.S.)	7	-	7
TOTAL	723	385	1108

Spirits Tested	Imported	Australian	Total
Whisky	2832	93	2925
Brandy	96	2042	2138
Rum	707	885	1592
Gin	590	507	1097
Vodka/Ouzo	95	1002	1097
Other Spirits	753	48	801
TOTAL	5073	4577	9650

Imported spirits tested was 58.65% of total.
Australian spirits tested was 41.35% of total.

VARIOUS ALCOHOL BEVERAGES SUBMITTED TO THE GOVERNMENT CHEMICAL LABORATORIES FOR DETERMINATION OF SPIRIT STRENGTH, COMPOSITION, FOREIGN MATERIALS

	Imported	Australian
Whisky/Bourbon	10	-
Brandy	9	4
Rum	4	2
Wine	8	3
Gin	-	2
Beer	-	5
TOTAL	31	16

LEGAL ACTION - LIQUOR - 1983

(i) Absence of blue dye

Hotel	- fined	$30.00
	costs	$45.20

(ii) Unwholesome alcoholic beverages

Restaurant	- fined	$80.00
	costs	$37.20

COMPLAINTS INVESTIGATED - 1983

The following complaints were investigated:-

Watered, adulterated beer

Hotels	4
Tavern	1

BAR, COOLROOM, HYGIENE, BLUE DYE PROVISION - 1983

58 dye orders were served on licensees to provide blue dye to drip trays.

45 verbal requests were also made for the above.

9 requests were made to provide alternative storage for exposed food found in beer coolrooms.

28 requests were made relating to the cleansing of coolroom floors, walls and ceilings.

15 requests were made to improve the general cleanliness of bar areas.

46 requests were made to replace/recover glass trays.

36 requests were made to clean or repair glasswashers.

3 requests were made to replace damaged jugs.

11 requests were made to clean temprites.

4 requests were made to remove dogs from bar area.

2 requests were made for staff to cease smoking.

2 unbranded carcases found in beer coolrooms:-

1 conviction - fine $200.00
costs $ 67.40

MEAT SECTION

The meat industry throughout Western Australia remains in a depressed state, particularly with the downturn in the beef industry and the escalation of the farming communities swing away from live stock production, towards wheat and cereal crops.

Unseasonal rains in the State's north has caused transport problems resulting in all abattoirs in the southern part of the State being unable to work to full capacity.

A modern approach to inspection procedures with emphasis placed on antemortem, hygiene, quality assurance and classification is and will continue to be promoted within the industry.

Discussions on a single meat inspection service have continued with the Department of Primary Industry who are not disposed to providing the service to small abattoirs or where part-time meat inspection is operating in association with environmental health matters.

Lamb Dispute

No lambs were processed at country works for several months during the dispute between country abattoir proprietors and the Western Australian Lamb Marketing Board, resulting in lambs being imported from New South Wales, Victoria and South Australia. All were inspected and branded on arrival.

Country Abattoirs

Inspection of all premises was carried out throughout the year. Officers continued to spend periods of time advising management on structural alterations and demonstrating how to use "A" frames and generally improving the standard of meat inspection.

Illegal Slaughter

All illegal slaughter reports have been investigated resulting in three successful prosecutions. The C.I.B. were advised of a butcher forging the Public Health Department brand and subsequently court proceedings were successfully carried out.

Smallgoods Monitoring Programme

This programme has continued throughout the year with encouraging results. Co-operation from management and staff is good. Considerable quantities of smallgoods are imported and random testing of these products is carried out.

Interstate Visits

The senior officer, a member of the working party on the Common Standard of construction for Australian Abattoirs and a member of the subcommittee on veterinary public health attended two Eastern States meetings during the year.

Pet Meat Regulations

The final draft of the Pet Meat Regulations has been completed and only details relating to the application of the dye need to be resolved before all parties are fully satisfied.

Abattoir Inspections

51 local abattoirs operated to December 1983.
2 changed ownership.
Approximately 130 inspections were carried out.
45 received Departmental work orders.
1 was closed until the work completed.
Majority were visited three times during the year.

Abattoir Data

Registered local abattoirs	51
Registered export abattoirs	11
Registered abattoirs - No inspection	9
New abattoirs	Nil

Kill Figures - Total State

Cattle	216,076
Veal	18,571
Sheep	1,568,121
Lamb	387,277
Goats	50,380

Further detail of meat inspection activities in relation to stock slaughtered is provided in Appendix V.

Meat Imports

Carcase Lamb	184,196	
Carcase Beef	2,721	
Cartons Beef	32,587	
Quarters Beef	1,218	
Carcase Veal	900	
Carcase Pork	126	
Cartons and Bags Pork	620	
Carcase Roo	1,102	
Bulk Roo	275	tonne
Rabbits (Pairs)	9,944	
Cartons Venison	23	

Sampling Programme

Total samples		6,817
Comprising:-		
Effluent waters	379	
Moore swabs	361	
Hand washes	2,775	
Faecal	23	
Equipment swabs	753	
Meat	958	
Smallgoods	495	
Chicken	898	
Seriological	150	
Chemical	4	
Water	11	
Meat meal	10	

RESEARCH AND SPECIAL PROJECTS SECTION
(Including Entomology and Pest Control)

Mosquitoes

The monitoring programme for Australian encephalitis in the north of the State has continued in conjunction with a rolling assistance programme for health officers in northern communities in control procedures. A further subsidy has been allocated for a ULV fogger making a total of four placements under the National Diseases Control Scheme.

Fly Control Campaign

The media based control campaign continued and has been extended to include an evaluation research element. Approaches have been made to south west local authorities with the view to giving the programme a wider coverage.

Pest Control Unit

The unit's work-load continues to increase as more government instrumentalities and departments particularly schools make use of the service. Many institutions have been placed on regular fly control programmes.

The following pest control treatments were conducted during the period under review:-

402	Cockroach
22	Spider
130	Rat
141	Mice
104	Ant
41	Cricket
64	Flea
88	Termite
47	Silverfish
1	Scorpion
90	Bee
25	Mosquito
83	Midge
12	Fly
8	Pidgeon Lice
4	Cat
9	Possum
216	Redback spider
33	Pidgeon
21	Mites
1	Squirrel
5	Bed bugs
24	Wasp
1	Weed
4	Lice
1	Ticks
10	Other
1,587	Total

Caravan Parks

A continuing survey of all caravan parks in Western Australia to determine specific levels of compliance with caravan parks and camping grounds regulations and by-laws has been maintained.

Controversial issues have resulted in major upgrading programmes of caravan park facilities in centres such as Broome, Exmouth and Coral Bay.

Construction Camps

As a result of the north-west shelf gas development, pipeline construction necessitated considerable involvement by officers in the area of construction camps at the planning and advisory level necessitating several visits to a number of line camps.

Rottnest Island

Regular surveillance of water supply, sewerage disposal, food outlets and other facilities was conducted by Departmental health surveyors.

The re-development of the lodge required substantial supervision during construction and a major study of the water supply system was conducted with engineers from the Public Works Department and the Rottnest Island Board. Recommendations in relation to the upgrading of the water supply will necessitate further frequent visits. Negotiations with Rottnest Island Board and the Y.M.C.A. for the upgrading of the Y.M.C.A. camp facilities on the island continues.

Eyre Highway

Eyre Highway inspections continued with the local authority taking a more active role in the steady upgrading of the standard of service premises.

PUBLIC BUILDINGS SECTION

The number of plans submitted for the year was down on the previous year in contrast with previous years which had shown a steady increase.

Routine inspection of public buildings in larger country towns has shown a general improvement and an awareness by local authorities as they continue the process of upgrading public buildings to the requirements of the regulations.

Due to the efforts of the Perth City Council Health Department there is a greater involvement in the routine surveillance of night clubs and hotel entertainment areas where there has been considerable pressure applied to relax the formula of one person per square metre of floor space as a means of assessing the numbers of patrons permitted in night clubs and hotel entertainment areas.

Legislation

During the year extensive redrafting of the private hospitals regulations, and swimming pool regulations was undertaken. These have been distributed to various bodies for comment.

A draft of the proposed amendments to the definition of a public building will bring it in line with the uniform building by-laws.

Swimming Pools

All country public pools were inspected during the year. While a good standard was attained in the majority of areas, it was established that some of the older pools were in need of upgrading. All local authorities showed awareness for the need for proper pool care and maintenance and readily attended to recommendations from Departmental officers.

Twenty-two public pools were closed during the period due to the presence of Naegleria species being isolated from pool water.

GENERAL SECTION

Extreme staff shortages restricted activities in some areas. A Departmental officer from the section is still providing a service to the Lower Murchison and this is continuing on the basis of two weeks in the area every six weeks.

Derby and Wyndham continue to be staffed from this section on a full-time basis and three officers were stationed at Carnarvon for a period of 10 weeks.

By-laws and amendments submitted by local authorities continue to demand extensive examination. During 1983 forty submissions were processed in addition to the handling of lengthy and numerous telephone enquiries relating to this subject.

Another long-sought revision undertaken was that of the model by-laws, Series "A". To date the examination has been solely by Departmental officers but it is intended to involve local government health officers as soon as practicable.

During 1983 a detailed examination by two Departmental officers was undertaken to assess health standards within the Shire of Boulder. As a consequence it was determined that the health needs of the Shire were not being met with the staff available and following representation from the Department, the Shire has since advertised for an additional health surveyor.

The Shire of Denmark also was assessed for health standards and needs in light of the fact that the health/building surveyor was not employed on a full-time basis. Full time involvement was warranted and the officer has since been employed on that basis.

An officer from the section was also jointly involved with other Branch officers in an examination of staffing levels in the Capel Shire. This matter has not been fully resolved.

An initiative undertaken in the past year was the commencement of what is intended to be regular health supervisory service by a Departmental officer to Central Reserve Aboriginal communities.

It is hoped that such involvement will assist in raising standards of environmental health presently existing at these communities.

Assistance was again provided to the Laverton Shire by way of making an officer available for one week in September to supervise hygiene and sanitation associated with the staging of the Aboriginal Christian Convention in Laverton.

Surveillance has continued at Perth and Jandakot airports on behalf of the Department of Aviation. Comprehensive inspections of the State's 14 prisons have also been carried out.

Water Sampling

Monitoring of waters by virtue of regular sampling of the ocean, river and lakes was carried out in 1983 on the following basis:-

Ocean Sampling

26 sites were monitored twice a month from Burns Beach to Wells Park Beach, Kwinana.

Over the year 624 samples were taken.

River Sampling

30 sites were monitored on a quarterly basis.

Over the year 100 samples were taken.

Lake Sampling

Until June 19 sites were monitored monthly. Since then 13 sites have been monitored, giving a total sample number throughout the year of 192 samples.

Throughout the year 924 environmental (water) samples were taken.

In addition to the foregoing, limited water sampling programmes were also undertaken at the following establishments.

Methodist Ladies' College	(bore water)	11 samples
Walyunga National Park	(dam water)	17 samples
Graylands Hospital	(bore water)	26 samples
Quo Vadis Centre	(dam water)	16 samples
S.E.C. Depot	(rain water)	18 samples

WASTE MANAGEMENT SECTION

Septic Tanks

The number of septic tanks approved in 1983 decreased by 557 on the 1982 figure. This situation could be attributed to the decreased activity in the building industry and to the impact of the government's sewerage policy for the metropolitan region.

Approvals for the year were as follows:-

Metropolitan	2,122
Country	2,440
	4,562

Land Development

Advice continues to be provided to the Town Planning Department on subdivisional development where on-site disposal systems are to be utilised. Examinations of town planning schemes submitted by local authorities and private consultants continued.

A marked reduction in the number of subdivisions assessed by the section during the year, saw 87 assessments made, the majority of which were within the metropolitan region. Examination of town planning schemes or amendments thereto were made for local authorities, and private consultants. Special investigations resulted from appeals to the Town Planning Board.

Local Authorities' Sewerage Undertakings

The Health Act provides for local authorities to construct sewerage systems within their district. Approval was given for systems at Coolgardie and Ravensthorpe.

Disposal of Liquid Wastes

1983 saw the introduction of the Health (Disposal of Liquid Waste) Regulations, 1983 which provided the long awaited control of the collectors of and the disposal of liquid wastes.

This has resulted in a marked reduction in illegal dumping practices.

Three biodegradable liquid waste sites operate in the metropolitan region and the nature of wastes and quantities deposited at each site is listed below:-

Site	NATURE OF WASTES (MEGALITRES)				TOTAL
	Animal Waste	Bacterial Waste	Vegetable Waste	Vegetable Oils and Tallow	
Canning Vale	3.42	80.66	12.18	3.25	99.51
Newburn	0.46	18.05	2.29	1.17	21.97
Kwinana	0.22	10.77	0.34	0.09	11.42
TOTAL	4.10	109.48	14.81	4.51	132.90

Community Waste Management

The Western Australian Waste Disposal Advisory Committee which met regularly throughout the year, obtains its secretarial service from Departmental staff.

APPENDIX I

FOOD SAMPLES 1983

	Chemical	Bacteriological	Sereological	Electrophoresis	Mycology
Air Force Meals		70			
Apricot Kernels		4			
Baby Foods Canned	2	1			
Breakfast Cereal	1				
Bread	2				
Butter Oil		10			
Chicken		421			
Chinese Sauces		3			
Confectionery	2	2			
Dates (Bulk)	18	90			
Dietary Foods	7				
Eggs (Whole)	1				
(White)	1				
(Pulp)		21			

	Chemical	Bacteriological	Sereological	Electrophoresis	Mycology
Fish Fresh/Frozen	254	81		25	
Smoked	6				
Cooked	8				
Canned	2	1			
Fruit:					
Juice	20	2			
Ginger (Chrystalised)	1				
Ice		1			
Ice Cream	4	61			
Meat Fresh/Frozen	244		8		
Canned		2			
Small Goods	97	61			
Drinks Milk	2				
Milk Goat		43			
Human	36				
Raw		4			
Powdered		14			
Whey		10			
Nuts Cashew	1				
Peanuts	5				
Pistachio	4				
Olive/Cooking Oil	4				
Paprika		50			
Pet Foods	1				
Potato Chips	4				
Prawns		6			
Rice	6				
Royal Show (Take Aways)		27			
Seseame Seeds/Paste		80			
Shellfish Chilled/ Frozen	82	378			
Soft Drinks		10			4
Tea Bags	1				
Tomato Paste	6				
Tripe	48				
Vegetable (Misc)	33				
Canned	10	45			
Water		6			
Yoghurt	1	2			
Miscellaneous					
Bottle - Lager	1				
Carton - Milk	1				
Containers	2	2			
Pot Coffee	1				
	921	1528	8	25	4

APPENDIX II

MISCELLANEOUS SAMPLES 1983

	Chemical	Bacteriological
Cosmetics	1	
Effluent Industrial	3	6
Faeces Human		88
Garland Blender	1	
Machinery Food Processing		41
Moore Swabs Food Premises		13
Pelletised Poultry Manure		21
Poultry Processing		
Chickens (Dead)		2
Effluents		344
Feed - Stock		29
Litter (inc. papers)		18
Soil		35
Swabs Bench		48
Cloacal		8010
Drag		65
Moore		36
Powder White	1	
Straws Survival	1	
Tin	1	
Tooth Paste	2	
Toys		20
Water Bore (Stock)	2	20
Domestic (Potable)	8	
Swimming Pool		3
Unknown Substance	1	
Urine Human		1
	21	8800

APPENDIX III

FOOD AND ALLIED COMPLAINTS 1983

FOOD	NO.
Alcohol - Beer	11
Spirits	1
Wines	3
Animals in Shop	1
Apples	1
Apricot Kernels	1
Baby Dummy	2
Baby Foods	3
Bacon	3
Baked Beans	3
Biscuits	4
Bran	1
Bread	56
Bread Crumbs	1
Bread Rolls	9
Bread Sandwiches	5
Breakfast Cereals	20
Butter	1
Cakes	16
Cheese	10
Chico Roll	3
Chicken	38
Chocolate Pudding	1
Cockroach Infestations	7
Coleslaw	1
Coconut (Whole)	1
Coffee	2
Confectionery	29
Cooking/Vegetable Oil	3
Cream	1
Crab Sticks	1
Crayfish	2
Cool/Soft Drinks	12
Crockery/Cutlery	1
Date Marking	6
Eggs	1
Fish	7
Fish and Chips	6
Fish Canned	13
Fish Pastes	1
Flies	2
Flour	1
Food Hygiene	8
Food Poisoning	9
Food Premises	31
Food Transport	2
Fruit Canned	15
Fruit Dried	12
Fruit Juices	10
Fruit Pies	2
Hair Dye	1
Hamburgers	13
Honey	1
Ice Cream	7
Jams	3
Margarine	6
Meals Ethnic Burmese	1
Chinese	21
Lebanese	5
Malaysian	2
Mexican	4
Snack	4
Meats	31
Milk	31
Milk Drinks	3
Mustard	1
Nuts Mixed	4
Paté	1
Pavlova	1
Pickles	2
Pizza	5
Potatoes	4
Potato Chips	8
Pot - Coffee/Tea	2
Prawns	1
Protein Supplement	1
Refrigeration	1
Rice	8
Shellfish	4
Small Goods	27
Soups	1
Soy Sauce	1
Spaghetti	2
Spices	2
Sugar	1
Toothpaste	2
Vegetables Fresh/Canned	42
TOTAL	634

APPENDIX IV

CONDEMNATIONS 1983 IN KGS

Biscuits	39 x 125 Gr	4.8	
	94 x 200 Gr	18.8	
	228 x 250 Gr	57.0	
	20 x 375 Gr	7.5	
	25 x 500 Gr	12.5	
	6 x 1.5 Kg	9.0	109.60
Cakes	65 x 300 Gr	19.5	
	8 x 400 Gr	3.2	
	8 x 800 Gr	6.4	29.10
Cheese			5.00
Dates			145475.00
Fish			
	Fingers	600	
	Hake	75	
	Perch Fillets	11240	
	Salmon (Tinned)	300.15	
	Tuna	10430	
	Whiting Breaded	10114	
	Shell - Oyster	608	
	- Scallop	136	33503.15
Tomato Puree			259.20
Vegetables			
	French Fries	40	
	Onions	20	
	Potatoes	175	235.00
			179616.05
Miscellaneous			
	Assorted Spices	100	
	Pastries	15	
	Seafood	10	
	M.D.M. Chicken	5820	5945.00
			185561.05 Kgs

APPENDIX V

MEAT INSPECTION FOR THE YEAR ENDED 31ST DECEMBER 1983

		CARCASES CONDEMNED											PART CARCASES CONDEMNED							ORGANS CONDEMNED				
ABATTOIR AND TYPE OF STOCK SLAUGHTERED	Stock Slaughtered	Tuberculosis	Actinomycosis	Emaciation	Caseous Lymphadinitis	Pyrexia	Paratyphoid	Polyarthritis	Icterus	Traumatic and Other Septic Conditions	Contamination and Other Abnormalities	T O T A L	Tuberculosis	Actinomycosis	Caseous Lymphadinitis	Arthritis	Contamination	Other Abnormalities	T O T A L	Actinomycosis	C.Ovis	Hydatids	Other Abnormalities	T O T A L
ROBBS JETTY -																								
Cattle	33317									32	38	70				113		3846	3959				5078	5078
Calves	1898										1	1												
Sheep & Lambs	571046				2602					176	2060	4838											70654	70654
Goats	48237										475	475											2646	2646
WATSONS -																								
Pigs	222532			1		75	1	136	15	81	45	354		22		1176		43281	44479				37933	37933
KARNET -																								
Cattle	1282			1							1	2				4			4				18	18
Calves																								
Sheep & Lambs	5500				6			2		1	9	18				22		2	24				225	225
Pigs	1368															3		2	5				5	5
*COUNTRY DISTRICTS																								
Cattle	181477	11	6	15		19		52	1	112	49	265	4	229		149	48	107	537	31		24	8786	8841
Calves	16673			7				1		18	11	37				29			29				118	118
Sheep & Lambs	991734	1		2504	365	72		964	9	1007	4276	9198			262	2946		346	3554		6086	591	113941	120618
Pigs	163377					37				139	54	230				328		128	456				11617	11617
Goats	2142																							
TOTAL STATE -																								
Cattle	216076	12	6	16		19		52	1	144	88	338	4	229		266	48	4066	4613	31		24	13882	13937
Calves	18571			7				1		18	12	38				29			29				118	118
Sheep & Lambs	1568280	1		2504	2973	72		964	9	1184	6345	14052			262	2968		348	3578		6086	591	184820	191497
Pigs	387277			1		112	1	136	15	220	99	584		22		1507		43411	44940				49555	49555
Goats	50380										475	475											2646	2646

NOTE: Country Abattoirs included -

Augusta/Margaret River, Boulder, Bridgetown/Greenbushes, Bruce Rock, Busselton, Bunbury, Capel, Carnamah, Carnarvon, Coolgardie, Dardanup, Denmark, Esperance, Gascoyne*, Gingin, Goomalling*, Greenough, Harvey, Katanning*, Kojonup, Kalgoorlie*, Manjimup, Merridan, Moora*, Northampton, Narrogin*, Northam, Plantagenet*, Tammin*, Toodyay, Three Springs, Wagin, Woodanilling, Waroona*, Wongan-Ballidu.

*Only figures for stock slaughtered, no condemn figures.

Appendix X

KIMBERLEY HEALTH REGION

R.M. Spargo
Cit (W.A.), J.P. M.B.B.S. M.P.H.
Director

SENIOR STAFF

Director : Dr. R.M. Spargo
Regional Nursing Administrator :
Mrs. P. Humphris
Senior Dental Officer : Mr. W. Evans
Regional Manager : Mr. P. Matison

COMMUNITY MEDICAL OFFICERS

Dr. L. Anderson
Dr. H. Saddler
Dr. N. Wong
Dr. D. Oneill
Dr. A. Penman

KIMBERLEY HEALTH REGION - ORGANIZATION CHART

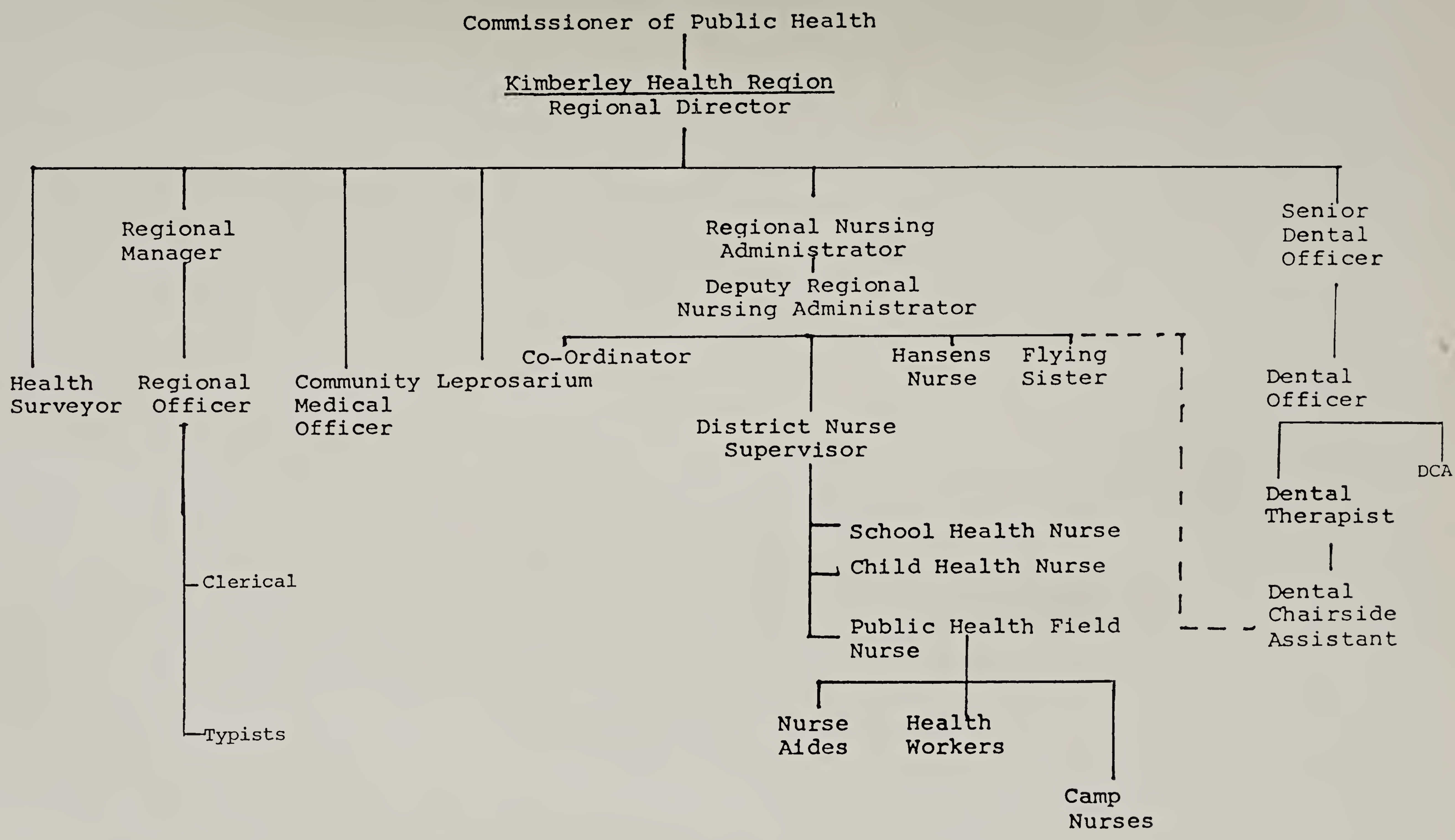


TABLE 1

STAFF AS AT 31/12/82

CATEGORY	APPROVED ESTABLISHMENT	ACTUAL INCUMBENT
Nursing		
Itinerant Health	42	36
C.H. Programme	5	5
Child Health	3	3
School Health	4	4
Health Workers	26	23
Regional Aboriginal Health Liaison Officers	2	1
Community Medical Officers	6	4
Dental Officers	3	3
Dental Therapists	3	3
Dental Chairside Assistants	6	5
Health Surveyors	2	2
Administrative/Clerical	9	9
Leprosarium		
Nursing	3	3
Admin.	6	6
Wages	10	9

TABLE 2

REGISTERED CLIENTS OF ABORIGINAL DESCENT - KIMBERLEY AS AT DECEMBER, 1983

AGE GROUPS	MALE	FEMALE	TOTAL
0-4	782	782	1564
5-14	1,525	1404	2929
15-19	580	513	1093
20-49	1754	1798	3552
50-64	468	445	913
65+	284	249	533
UNKNOWN	23	20	43
TOTAL	5,416	5,211	10627

FLYING SISTERS

The Victorian Section of the Royal Flying Doctor Service facilitates an important contribution to the delivery of health and disease care services to isolated communities in the Kimberley. Aircrafts operate from bases at Wyndham and Derby.

TABLE 3

R.F.D.S. (VICTORIAN SECTION)

PATIENT STATISTICS KIMBERLEY (1983)

CLINIC CONSULTATIONS	HINTERLAND TO HOSPITAL EVACUATION (1)	HOSPITAL TO HINTERLAND REPATRIATION
Aboriginal Descent 6,042	Emergency 425	591
Non-Aboriginal 454	Routine 570	

---

(1) Includes 138 persons admitted to hospital as boarders.

IMMUNISATION

Immunisation coverage of Aboriginal children at 12 months of age as at 17th March, 1984 Kimberley.

TABLE 4

	1982 COHORT
BCG	96.5%
SABIN 1	96.5%
SABIN 2	96.5%
SABIN 3	89.6%
TA/CDT 1	96.5%
TA/CDT 2	96.5%
TA/CDT 3	89.6%
MEASLES	48.2%

Figures are percentages of eligibles.

With changes in the Nurses Board Regulations, nurses can be certified competent to give immunisation without direct medical supervision. During 1983, workshops were held throughout the Kimberley and many nursing staff have now been tested in competency. In 1984 this educational input will be stepped up and performance appraisal will be regularly applied to maintain the high rates of immunisation achieved with the active programme in the Kimberley.

TABLE 5

ABORIGINAL PERINATAL, NEONATAL AND INFANT MORTALITY
KIMBERLEY, 1983

ALL BIRTHS (1)	351
STILLBIRTHS	3
LIVE BIRTHS	348
DEATHS	
NUMBER:	
PERINATAL	9
NEONATAL	6
POST NEONATAL	7
INFANT	13

These infant deaths are corrected for infants who died outside the Kimberley but had a Kimberley origin.

(1)(Excludes all births where birthweight is below 500 grams.)

TABLE 6

ABORIGINAL FOETAL AND INFANT LOSSES

KIMBERLEY 1983

Category	No.	Age at Death	Sex	Birth Weight Gms	Mothers Age (Years)	Place of Death	Cause
STILLBIRTHS	1		-	420	25	D.R.H.	-
	2		M	2260	17	D.R.H.	Intra Uterine Asphyxia Placental Failure.
	3		F	3925	26	D.R.H.	Intra Uterine Asphyxia Maternal weight loss. Rise in maternal rubella titre late in pregnancy.
	4		F	1335	19	B.D.H.	Syphilis.
NEONATAL	1	(Min.)	M	1300	19	H.C.H.	Tentorial Tear, Cerebral haemorrhage Prematurity, Breech Extraction.
	2	6 hours	M	845	24	KEMH	Extreme Immaturity.
	3	8 hours	M	3500	21	W.D.H.	Birth Injury.
	4	12 hours	M	2380	32	D.R.H.	Maternal Blow to Abdomen Placental Abruption.
	5		F	2535	17	D.R.H.	Pulmonary Haemorrhage, Disseminated Intra-vascular coagulation septicaemin.
	6	2 days	M	3155	34	P.M.H.	Congenital Heart Anomaly.
POST NEONATAL	1	4 weeks	F	2935	28	H.C.	(luscs) SIDS
	2	7 weeks	F	3225	22	B.D.H.	Aspiration Pneumonia. Neurological Deficit. Severe Birth Asphyxia. Respiratory Tract Infection.
	3	9 weeks	M	4585	28	H.C.	S.I.D.S.
	4	3 months	F	2885	26	Derby	Respiratory Tract Infection.
	5	3 months	M	1160	16	Looma	S.I.D.S.
	6	4 months	M	2680	22	W.D.H.	Cardio-pulmonary Arrest Electrolite inbalance Anaemia Gastroenteritis
	7	5 months	F	1550	19	D.R.H.	Prem. Birth. Cerebral Palsy, Bulbar Palsy. Pharyngeal Inco-ordination, Aspiration, Hypostatic Pneumonia.

D.R.H. - Derby Regional Hospital, B.D.H. - Broome District Hospital, H.C.H. - Halls Creek, Hospital,
W.D.H. - Wyndham District Hospital, KEMH - King Edward Memorial Hospital, P.M.H.- Princess Margaret Hospital.

TABLE 7

ABORIGINAL MORTALITY BY AGE AND SEX, KIMBERLEY, 1983

AGE CATEGORIES	MALE	FEMALE	TOTAL
0+	8	5	13
1-4	-	1	1
5-14	-	-	-
15-49	13	5	18
50-64	16	8	24
65+	24	19	43
COLUMN TOTAL	61	38	99

This table shows the breakdown of Aboriginal mortality in the Kimberley by age and sex. From this table, the proportional mortality ratio age 50 years and over (the P.M.R. 50+) for the Kimberley Aboriginal population in 1983 was 67.67%.

ABORIGINAL HEALTH WORKERS

The approved establishment for this category of staff remains thinly stretched in the Kimberley. In part the result of a no-growth policy, in part consequent upon the many Aboriginal communities which have evolved.

Some have no health worker, others have only a part-time health worker and some large communities optimally need a greater array of health workers to meet the gender and factional needs.

Workshops are held regularly throughout the Kimberley. Each year the health workers plan and organise a combined Kimberley - Pilbara Health Workers Conference. This year the conference was held in Derby.

With the educational advances achieved through the completion of the Mt. Lawley General Education Programme, some health workers will aspire to new and greater responsibility. There is a need now for the design of categorical programmes to be managed by such health workers and to arrange a restructuring of the health worker concept to allow for upward mobilization.

During this year the concept of a health worker with special responsibilities, for liaison with Aboriginal communities and for the orientation and training of new health workers was established. It is planned optimally to appoint four health workers, one for each of the Public Health Districts in the Kimberley.

ALCOHOL AN ALCOHOL RELATED PROBLEMS

In Derby a community based group has reached the stage of incorporation and in 1984 will seek to have staff trained as counsellors. These groups will perform an essential function in the maintenance phase, of any formal alcohol programme that evolves within the region. For the future a single Kimberley centre having a regional function needs to be developed for the rehabilitation phase of an alcohol programme. The movement out of Kimberley of Aboriginal patients to southern urban facilities is not optional management.

The prerequisite to the organization of any regional centre for the rehabilitation phase function is an optimally functioning maintenance phase system in each major centre in the Kimberley. This should be a grass roots organization with professional input as necessary, serving as a portal of entry into the rehabilitation programme, but of more importance, supplying the ongoing support to individuals returning from the rehabilitation phase.

Increasingly there will be a demand for rehabilitation effort. Rehabilitation programmes may have utility in restoring victims temporarily, especially where the victim or others of his family, or community system level are about to collapse under the strain of the victim's illness.

None-the-less for the Aboriginal population in this region, heavily burdened by alcohol related problems, a properly researched and designed primary prevention programme needs to receive priority.

SEXUALLY TRANSMITTED DISEASES

The Venereal Disease Co-ordinating Committee met quarterly in different centres in the Kimberley. Our thanks are extended to Mr. John Edwards, the Regional Administrator for the Kimberley, who acts as Chairman and Doctor Maurice Gollow the Director of the Venereal Disease Control Branch, whose enthusiasm and vigour has had a significant impact upon these meetings. The format of the meetings has changed to allow for the meeting to be public and for separate meetings to be held in adjacent discrete Aboriginal communities each quarter. As discussion about the sexually transmitted diseases involves many facets of living, these meetings are now serving a wider health purpose.

There are considerable advantages in these meetings with the increase in community awareness and knowledge of the sexually transmitted diseases, and in useful feedback from other agencies. For instance at a Broome meeting the police superintendent suggested that the prison and lock-up system might offer a significant yield of new cases. During 1983 we examined this concept and extended screening to the lock-up system. A revealing report from the community medical officer at Halls Creek is as follows.

In July we began screening the inmates of the Halls Creek (genital swabs and serology). Screening of this population was carried out at 7.00 a.m. every Monday morning. From July 1 to November 30, 315 males and 73 females were screened. Thirty six cases of gonorrhoea were confirmed through this procedure. In addition, 16 people were identified as having a combination of leucocytes and extracellular gram negative diplococci which we have regarded as gonorrhoea for the purposes of treatment and contact tracing.

One physician can screen 8 men per hour in the lock-up, which is a much more productive rate than the time consuming process of contact tracing so that the resources expended per case identified are probably comparable between the two approaches. Owing to the high prevalence of gonorrhoea among lock-up inmates, and the logistical difficulties of follow up, it is now our practice to treat all inmates at examination with amoxil (2 grams) and probenecid (1 gram).

The really satisfying pay off in lock-up screening, however had been in the detection of the treponematosis. Nine cases with active serology defined as the combination of positive VDRL and positive F.T.A. IgM were uncovered in five months, fully half our yearly total. Not all of these were reported by us because examination, staging and treatment was the responsibility of other areas to which clients had moved. Three cases of Donovanosis were also discovered in the lock-up.

TABLE 8

NOTIFIED CASES OF SEXUALLY TRANSMITTED DISEASES

KIMBERLEY 1983

	Gonorrhoea	Significant Treponemal Seroreactivity
Males	347	47
Females	137	58
TOTAL	484	105

DENTAL HEALTH

During 1983 both the Derby and Kununurra Dental Clinics became private practice clinics.

The Dental Outreach Programme continues and is an effort by Dental Health and other health providers to increase the utilization of dental services by the Aboriginal population in the Kimberley.

This population as adults are significantly burdened with a high frequency of missing or useless teeth.

The pervasive precursor is advanced periodontal disease as much the result of a cultural and behavioural outlook, as having had a limited array of options in the past, for restorative work.

The outreach programme is designed to facilitate access to Dental Services. These Dental Services will be community delivered and on an active rather than a passive basis with information inputs to increase the level of awareness and expectations for improved oral hygiene

HEALTH SURVEYING

A particular problem has been the number of planned independent Aboriginal communities which have evolved, currently at varying stages of development in terms of service infrastructure and with varying community capacity to manage that infrastructure.

In addition to these communities there are now a number of smaller groups of Aboriginals camping in the bush.

If their camps sites become permanent there will need to be considerable input into developing an array of service infrastructure options suitable for their particular needs and within the capacity of the group to develop themselves.

These inputs if they give rise to an impetus for change, will have a far greater stabilising effect than a concentration on the provision of shelter. The reality that needs be faced is that the lead time to allocation of funds for capital works is considerable in a situation of scarce resources and multiple competing groups.

The demands on each health surveyor by two local authorities are considerable. The provision of health surveying services is a local government responsibility and it is expected that the Shires within the Kimberley will be meeting the full cost of providing those services at the end of the next financial year. There would be a considerable burden placed upon local authorities if they were expected also to meet the special needs of the many evolving Aboriginal communities.

There would be advantage in the appointment of a Departmental officer to concentrate upon the environmental health needs of discrete Aboriginal communities.

Application has been made this year under the Commonwealth Wage Pause Programme for the employment of an Aboriginal person in discrete communities, to respond within their capacity, to some of the environmental deficiences, to raise community awareness and expectation for environmental improvement as much as achieving tangible changes. It is anticipated that the health surveyors should have significant input at this level.

TABLE 9

ANALYSIS OF ACTIVE LEPROSY ADMISSIONS BY ORIGIN SEX, AGE AND LEPROSY TYPE, 1983

Registered Number	Origin	Sex	Age	Classification
New Admissions				
1248	Pilbara	Male	55	BL
1249	Kimberley	Male	24	BT
1250	Kimberley	Male	16	BT
1251	Kimberley	Male	35	BT
1252	Pilbara	Female	77	BT
1253	Kimberley	Male	16	LLs
1254	Kimberley	Male	19	LLs
1255	Kimberley	Female	26	LLs
1256	Kimberley	Male	20	LLs
Readmission				
1079	Kimberley	Male	22	BL

TABLE 10

LEPROSARIUM PATIENT CATEGORIES BY SEX

CATEGORY	MALE	FEMALE	TOTAL
Patients as at 1st January, 1983	7	5	12
ADMISSIONS			
New (Multibacillary)	4	1	5
New (Paucibacillary)	3	1	4
Bacillary Relapse	1	-	1
Disability	10	4	14
Kimberley Origin	17	5	22
Other than Kimberley Origin	1	1	2
Aboriginal Descent	18	6	24
DISCHARGES	11	5	16
Patients as at 31st December, 1983	14	6	20
Multibacillary	6	2	8
Paucibacillary	-	-	-
Disabilities	5	-	5
Social Placement	3	4	7
Kimberley Origin	13	6	19
Other than Kimberley Origin	1	-	1
Aboriginal Descent	13	6	19
Non Aboriginal Descent	1	-	1

TABLE 11

DERBY LEPROSARIUM

ADMISSIONS AND DISCHARGES FOR 1983

MONTH	ADMISSIONS							DISCHARGES									Inmates remaining in Leprosy		Total Male & Female
	MALE			FEMALE			Total Male & Female	MALE				FEMALE				Total Male & Female			
	Ad-mitted	Re-ad mitted	Total	Ad-mitted	Re-ad mitted	Total		Dis-charged	De-ceased	Ab-sconded	Total	Dis-charged	De-ceased	Ab-sconded	Total		Male	Female	
JAN.	1		1				1										8	5	13
FEB.	2		2		2	2	4										10	7	17
MARCH	1	1	2				2	3			3					3	9	7	16
APRIL		1	1	1		1	2					2			2	2	10	6	16
MAY	2		2	1		1	3	1			1					1	11	7	18
JUNE								1			1	1			1	2	10	6	16
JULY				1		1	1										10	7	17
AUG.	1		1				1										11	7	18
SEPT.																	11	7	18
OCT.		1	1				1										12	7	19
NOV.								1			1					1	11	7	18
DEC.		8	8		1	1	9	4	1		5	2			2	7	14	6	20
TOTAL	7	11	18	3	3	6	24	10	1	-	11	5	-	-	5	16			

TABLE 12

COMPLETED REVIEWS OF REGISTERED PATIENTS

DECEMBER 1983

	Male	Female	TOTAL
Admitted	31	9	40
Not Admitted	124	90	214
Total	155	99	254

TABLE 13

DETAILS OF LEPROSY REGISTER, KIMBERLEY

DECEMBER 1983

On Treatment	223
Surveillance only	198
Lost to surveillance	16
Out of Region	29

CONFERENCES

Dr. R. Spargo attended the 53rd ANZAAS Congress in Perth during May 1983, and presented a paper : "Medical and Health Care Services for Rural Aboriginal communities".

RESEARCH ACTIVITIES

Full details of research activity may be obtained by contacting Dr. R. Spargo, Director, Kimberley Health Region.

University of Melbourne, Department of Medicine, Repatriation General Hospital, Heidelberg.

Collaboration with Dr. Kerin O'Dea has continued during 1983.

Since this research program began in 1977 we have conducted a series of studies attempting to elucidate the reasons for the particular vulnerability of Aborigines to diabetes when they urbanise, as well as searching for new approaches to the treatment and/or prevention of diabetes and associated conditions. Two basic questions underly this work. The first relates to the nature of the metabolic susceptibility to type 2 diabetes, whether all Aboriginal populations are equally vulnerable, and whether the potential for diabetes can be predicted from a simple metabolic test. The second relates to the lifestyle associated trigger factors, and the time-course of the changes in carbohydrate and lipid metabolism as diabetes becomes increasingly prevalent in an Aboriginal community.

Most surveys reporting high diabetes prevalence in Australian Aborigines have been conducted primarily on coastal or island communities around Australia (South Australia (1), West Kimberley (2), and Torres Strait (3)). Our own more detailed metabolic studies have been carried out with people from the Kimberley coast (4-10). By studying people from a known high-risk population before they get diabetes (i.e. when they are lean and young) we have been able to identify a cluster of metabolic characteristics which appear to be associated with susceptibility to diabetes (5) : mild impairment of glucose tolerance, hyperinsulinemia and hypertriglyceridemia. It is possible that these metabolic characteristics are associated with efficient fat deposition and would thereby have conferred survival advantage under conditions of traditional hunter-gatherer lifestyle (the "thrifty gene"). However, under conditions of western lifestyle with low physical activity and excessive energy intake (particularly sugar and fat), these same metabolic characteristics could promote obesity and eventually the insulin-resistant form of diabetes.

If this is the case, then desert Aborigines may have an even greater potential for diabetes than coastal Aborigines, since a "thrifty" or efficient metabolism would have been even more critical to their survival as hunter-gatherers in the harsh desert environment prior to westernisation. In order to test this hypothesis, in September-October 1983 we conducted oral glucose tolerance tests on a randomly selected cross-section of the adult male population from three Aboriginal communities in the south-east Kimberley (Billiluna, Lake Gregory and Balgo).

Of the 63 men tested, 4 were diabetic and a further 17 had impaired glucose tolerance (IGT). Both diabetes and IGT were strongly age-related : tolerance, whereas 83% of the men under 35 years had normal glucose tolerance.

The coastal and desert Aborigines exhibited remarkably similar mild impairment of glucose tolerance. The desert Aborigines had lower fasting glucose levels than the coastal Aborigines which may be taken as confirmation of their less urbanised status.

The most striking difference between desert and coastal Aborigines is evident in the insulin response to glucose. The mean fasting and postprandial insulin responses were much higher in the desert Aborigines than in the coastal Aborigines which, in turn, were 50% higher than caucasians. The hyperinsulinemia in the desert Aborigines was due to a high frequency (about two-thirds of all subjects) of high responders rather than to a generalized uniform high insulin response in all subjects. In other words, the frequency of hyperinsulinemia was highest in the desert Aborigines and lowest in the caucasians, with the coastal Aborigines being intermediate.

Fasting plasma lipid data for the desert Aborigines were also obtained. Hypertriglyceridemia was common and strongly age-dependent. About one-third of the men under 35 and over two-thirds of those over 35 years were hypertriglyceridemic. In contrast, cholesterol concentrations were low and only weakly age-dependent. The excess triglycerides were carried primarily on the very low density lipoprotein fraction.

Plasma vitamin A levels were in the normal range as were vitamin B12 levels.

The most significant conclusion which can be drawn from this study of carbohydrate and lipid metabolism in desert Aboriginal men is that they exhibit all of the metabolic hallmarks of widespread susceptibility to type 2 (insulin resistant) diabetes with an even higher frequency than previously observed among coastal Aborigines.

Although diabetes was not widespread (4/63), one third of those tested had impaired glucose tolerance, almost half had hypertriglyceridemia and about two-thirds were hyperinsulinemic. The group as a whole was not obese, although body mass index did increase somewhat with age. Impaired glucose tolerance and hypertriglyceridemia were both strongly age-related. In contrast, hyperinsulinemia occurred with a similar frequency across the age-range and, although it tended to be increased even further by obesity, it occurred commonly in lean subjects as well.

The normal vitamin A and vitamin B12 levels in these people are probably due to their regular meat consumption. Living on cattle stations, they have a history of high meat intake. Liver is particularly valued by these people. Our data has consistently shown that the Aboriginals studied (coastal and desert) are hyperinsulinemic even when young and lean.

An efficient ("thrifty") system for fat deposition would clearly have been a survival advantage under conditions of traditional lifestyle with its feast-and-famine pattern of food intake. It seems not unreasonable that such a "thrifty" metabolism would have been even more critical to survival in the desert than on the coast. The traditional lifestyle (whether coastal or inland) with its low fat, low energy diet and high level of physical activity would have minimized insulin resistance. With westernization, the change to a readily available diet rich in refined carbohydrate and saturated fat, and reduced physical activity (all of which increase insulin resistance), turn what had been a beneficial adaptation to a harsh lifestyle into a vulnerability to obesity and diabetes. As insulin resistance worsens (with dietary change, lack of exercise and developing obesity) a stage is reached where glucose tolerance becomes more severely impaired, reflecting the inability of the pancreatic B-cells to meet the increasing demands on their secretory capacity. The worsening hyperglycemia is then associated with a reduction in the capacity of the B-Cell to respond to elevated blood glucose as a stimulus for insulin release, and clear-cut diabetes (with impaired insulin secretory response) develops.

This highlights the interaction between genetic background and lifestyle. Only under particular conditions of western lifestyle are the trigger factors present which are necessary before diabetes will be precipitated in susceptible individuals. By defining both the nature of these trigger factors (sugar, fat, inactivity, obesity) and the mechanisms by which they interact with a particular type of metabolism (insulin resistance), it is possible to understand how diabetes develops. With this knowledge, it is theoretically possible to develop strategies to treat or, preferably, prevent diabetes in these high-risk communities.

We have previously approached this problem by demonstrating that diabetes was substantially reversed in Aborigines by a radical change in lifestyle i.e. temporarily reverting to traditional lifestyle (8,10). However, this is not a practical option for most Aborigines today. Less extreme compromises which incorporate particular aspects of traditional lifestyle without the complete lifestyle change present possible alternative approaches. These should be aimed at ameliorating the underlying insulin resistance which appears to form the basis of vulnerability to diabetes:

(i) dietary change which would reduce sugar consumption, fat consumption and overall energy intake;

(ii) increased physical activity;

(iii) control of body weight.

It is likely that desert Aborigines are in the early ("pre-diabetic") phase and that they are currently protected from widespread diabetes by their relatively low frequency of obesity. It is to be expected that diabetes will become more prevalent as the incidence of obesity increases. The positive aspect of all this is that the development of diabetes in these people need not be an inexorable process. It is at a stage where an intervention programme in the form of intensive education on the relationship between diet, lifestyle and diabetes (and related conditions) could theoretically prevent the potential high frequency of diabetes and its cardiovascular consequences.

This study was of a randomly selected cross-section of the adult males from three desert Aboriginal communities. Due to the comprehensive nature of the metabolic tests involved, larger numbers were not practicable. However, accurate data on the incidence of diabetes and IGT can only come from a more complete survey of the population, including the women. In this context it is important to note that the women from a coastal Aboriginal community in the Kimberley have a higher incidence of diabetes than the men (2). This is planned for the future.

C.S.I.R.O. Division of Human Nutrition and The University of Adelaide

Previous annual reports have referred to the slow growth, high susceptibility to infectious diseases and depressed nutritional status of Aboriginal children living in the Kimberley. Since 1981 body measurements and blood samples have been taken yearly from children in an expanding number of settlements. These have established that low zinc, iron and vitamin A status occurs throughout the population and that a depressed rate of growth of children is characteristic of the entire region. The strong possibility that zinc deficiency is a primary cause of both growth failure and high susceptibility to disease has led the CSIRO to fund an extensive intervention trial to test the effects of zinc supplement on growth and health of 300 children, 5 to 14 years of age, in five of these communities. Work during 1983 was directed almost entirely to the setting up of this trial which began in October 1983 and which will conclude in June 1985. The results of the trial will become clear in December, 1984.

In addition to this trial, which is being carried out at One Arm Point, Lombadina, Beagle Bay, Looma and Kalumburu with the generous assistance of the schools, further work both there and elsewhere is being undertaken to determine the intakes of all important nutrients by 8, 9 and 10 year old children though the use of dietary interviews and to estimate the nutrients available to the communities by examination of foodstore records.

Studies have now been completed on lymphocyte and granulocyte zinc in Aboriginal children 5 to 13 years. The zinc content of these cells was significantly reduced. While great difficulty has been encountered to establish clinical zinc deficiency, the climate of opinion in the United Kingdom and the United States of America is such, that the zinc content of the white cell is the true indicator.

Performance of this investigation is very difficult, but confirmation has come from the University of Adelaide using atomic absorption and the use of proton induced X-ray emission by the Department of Nuclear Physics at the Australian National University.

It has been established that red cell zinc and urinary zinc levels are also reduced.

Studies on body composition and in particular the measurement of cell mass by indirect water methods confirm the presence of growth retardation.

Concomitantly it is found that in three of the four coastal settlements surveyed that the precursor of the sex hormone testosterone and oestrogen is also at reduced levels.

A further investigation will be carried out during 1984 to determine the composition of breast milk from Kimberley Aboriginal women throughout the lactation period from birth to two years. The trace element zinc is again the primary focus of attention but other important nutritional factors will be studied as well. The nutrition of infants is of particular concern because retarded growth first becomes apparent at about six months and because serious impediments at such an early age may be difficult to correct in full later.

Gastroenterology and Nutrition Research Unit, Princess Margaret Children's Medical Research Foundation, and The Department of Child Health, University of Western Australia.

RESEARCH REPORT - M. GRACEY

Research projects have continued with Associate Professor Michael Gracey and his colleagues in the Princess Margaret Children's Medical Research Foundation and the University of W.A. This collaboration has continued for many years and concentrates on the joint problem of under-nutrition and infectious diseases in Aboriginal children. This work is now being re-inforced by the appointment of a research nutritionist, Miss Cheryl Bottrell, who is located in Derby and working closely with Public Health Department personnel in the region.

1. CHILDHOOD HOSPITALIZATION FOR INFECTIONS

As part of a state-wide study of patterns of hospital admissions for infectious diseases for the 10 years 1971-1980, the statistics for admissions of children in the Kimberley were analysed as part of a state-wide survey.

The rates of hospitalization of Aboriginal infants for gastroenteritis declined sharply from 393% in 1971 to 24% in 1980. Other infections, except those involving the respiratory tract, also showed a steep decline; from 260% in 1971 to 47% in 1980. For children aged 12 months to 5 years the hospitalization admission rate dropped very sharply in the first half of the decade. (78% a year to 24% a year) and continued to fall to 9% in 1980. Admission rates for other infections fell dramatically from 132% in 1971 to 20.5% in 1980. Those for lower respiratory tract infections were 8% in 1971, peaked at 18% in 1972, and had fallen to 2% by 1980. Hospitalization rates of non-aboriginal infants and children were much lower but did not show any significant drop over the 10 year period.

2. NUTRITION OF SCHOOL CHILDREN IN THE KIMBERLEY

Mrs. Nancy Hitchcock, Nutritionist with the Children's Medical Research Foundation, and Mrs. Annabel Gilmour are helping to analyse results of nutritional anthropometry of school children in the Kimberley. This will be compared to similar studies being undertaken in the metropolitan area.

Preliminary results are given in Tables 18 and 19.

TABLE 18

WEIGHT DISTRIBUTION

A. ABORIGINAL SCHOOL CHILDREN

	BOYS		GIRLS	
	<50th Centile	<10th Centile	<50th Centile	<10th Centile
Halls Creek (247)	69%	18%	55%	12%
Balgo Hills (131)	91%	40%	82%	41%
Kununurra (88)	97%	50%	71%	23%
Lombadina (30)	61%	11%	50%	0
Looma (57)	88%	41%	70%	22%
Fitzroy Cr. (134)	94%	51%	84%	32%
Broome (460)	78%	30%	69%	21%

B. NON-ABORIGINAL SCHOOL CHILDREN

	BOYS		GIRLS	
	<50th Centile	<10th Centile	<50th Centile	<10th Centile
Halls Creek (34)	13%	0	26%	5%
Broome (330)	58%	9%	54%	8%
Koolan Island) Cockatoo Is.) School of Air) (153)	50%	8%	51%	10%

TABLE 19

HEIGHT DISTRIBUTION

A. ABORIGINAL SCHOOLCHILDREN

	BOYS		GIRLS	
	<50th Centile	<10th Centile	<50th Centile	<10th Centile
Halls Creek (247)	47%	6%	33%	10%
Balgo Hills (131)	80%	40%	76%	29%
Kununurra (88)	78%	25%	61%	14%
Lombadina (30)	59%	24%	58%	25%
Looma (57)	91%	29%	70%	17%
Fitzroy Cr. (134)	71%	29%	68%	13%
Broome (460)	83%	35%	78%	29%

B. NON-ABORIGINAL SCHOOL CHILDREN

	BOYS		GIRLS	
	<50th Centile	<10th Centile	<50th Centile	<10th Centile
Halls Creek (34)	7%	0	32%	11%
Broome (330)	60%	10%	67%	15%
Koolan Island) Cockatoo Is.) School of Air) (153)	53%	9%	55%	13%

3. NUTRITION OF MOTHERS AND CHILDREN

A cross-sectional anthropometric survey was undertaken by Professor Gracey, Miss Cheryl Bottrell, Dr. Spargo and three medical students to assess the nutritional state of women of child-bearing age and infants and young children. This survey was done in seven communities in the West Kimberley and involved 128 children under the age of 5 years and 388 females ages 14-44 years.

More than 20% of the children were undernourished, three individuals severely so. All but one of those who were undernourished were over 12 months of age. Less than 60% of the females of child-bearing age were normally nourished; one-sixth were undernourished and one-quarter were obese, mostly older women. The findings indicate that poor nutrition is widespread in Aboriginal females of child-bearing age. This may be a significant factor contributing to the undernutrition and ill-health in aboriginal infants and young children.

Analysis of samples of breast milk from Aboriginal mothers has shown that concentrations of the protein, lactoferrin, are depressed in those mothers who are undernourished. Lactoferrin is an iron-binding protein with significant anti-bacterial properties, so that infants of undernourished mothers may be relatively deprived of this natural protective mechanism and, therefore more prone to infections such as gastroenteritis and pneumonia. This work was made possible through a grant from the TVW Telethon Foundation, Perth. Commencing in 1984 Professor Gracey, Dr. Spargo and Miss Bottrell will undertake a prospective study of nutrition and growth in a group of Aboriginal infants in four communities in the region to examine in more detail factors which influence health patterns in Aboriginal mothers and their children.

4. LACTOSE MALABSORPTION IN CHILDREN

Previous studies with Professor Gracey and his colleagues from the Princess Margaret Children's Medical Research Foundation, in collaboration with Dr. Jennie Brand of the Commonwealth Institute of Health (Sydney) showed that healthy Aboriginal adults in the Kimberley are intolerant of the sugar, lactose, which is present in milk. This is due to a decline in activity of the gut enzyme, lactose, after weaning. A further study has been done to determine the prevalence of lactose malabsorption in Aboriginal children. 70% of Aboriginal school children studied were lactose malabsorbers in comparison with only 9% of the control, non-aboriginal subjects studied. It seems that in common with most non-European people, lactose malabsorption is prevalent in Australian Aboriginal people and that this characteristic is well established by school age.

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In: Handbook of Electrophoresis Vol. 11 Ed. LA Lewis, Publ. CRC Press Inc. pp. 215-220, 1983.

13. O'Dea K.
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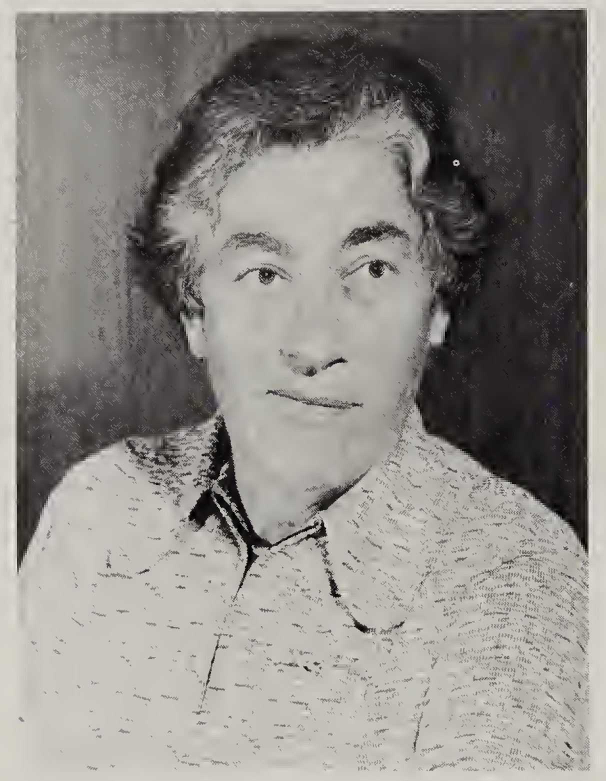
9. O'Dea K., Nestel P.J. and O'Connor M. Lipoprotein Lipid Patterns in Rural and Urban Australian Aborigines. In: Handbook of Electrophoresis Vol. 11 Ed. LA Lewis, Publ. CRC Press Inc. pp. 215-220, 1983.

10. O'Dea K. Marked Improvement in Carbohydrate and Lipid Metabolism in Diabetic Australian Aborigines following Temporary Reversion to Traditional Lifestyle. Diabetes (in press), 1984.

Appendix XI

NURSING ADMINISTRATION SECTION

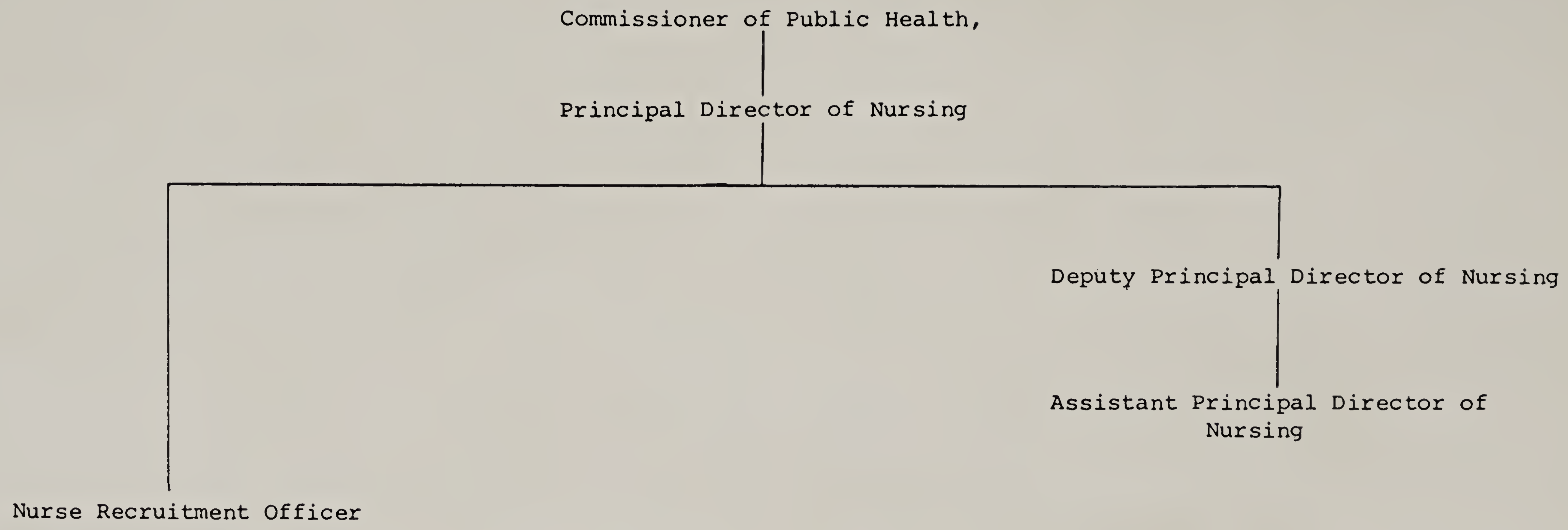


Miss E.L. Bohan,
I.S.O., F.C.N.A., D.N.A.,
Principal Director of Nursing

SENIOR STAFF

Principal Director of Nursing : Miss E.L. Bohan
Deputy Principal Director of Nursing : Miss C.J. MacDonald
Acting Assistant Director of Nursing : Miss M. Bray
Nurse Recruitment Officer : Mrs. G. Clark

NURSING ADMINISTRATION SECTION - ORGANIZATION CHART


Commissioner of Public Health,
Principal Director of Nursing
Deputy Principal Director of Nursing
Assistant Principal Director of Nursing
Nurse Recruitment Officer

NURSING ADMINISTRATION SECTION

NURSING SECTION

1. Private Hospitals Regulations 1970 (Health Act)

The private general/maternity hospitals and nursing homes to which these Regulations apply, are for the most part situated in the metropolitan area of Perth and Fremantle, although there are a few in the larger country centres: Albany, Bunbury, Narrogin, Kalgoorlie, Geraldton. Inspections to ensure compliance with the standards required have been as follows:

	Hospitals	Nursing Homes	Total
Routine Inspections	16	227	243
Investigation of Complaints	1	37	38

1.1 Closures

Mt. Lawley Nursing Home	19 beds
Woodstock Nursing Home	27 beds
Total:	46 beds

1.2 New/Additional Beds

Kwinana Nursing Home	30 beds
Addition to Cabrini Nursing Home	19 beds
Total:	49 beds

1.3 That there is continuing interest in the private sector is evidenced by the fact, that advice was sought by various groups on 16 sets of plans.

1.4 Total number of: Nursing Homes - 107 (4,878 beds)
Hospitals - 19 (1,763 beds)

2. Midwifery Nurses' Regulations 1972

There has been a minimal increase in the number of home births attended by nine midwives in private domiciliary practice:

Metropolitan	68
Country	29
Total:	97

Previous three years:	1980	61
	1981	57
	1982	95

3. Staff

As in previous years, welcome assistance in inspections has been given from time to time by senior Community Health Nurses.

Miss M-R Squire, (Assistant Principal Director of Nursing) was appointed to Extended Care Services earlier in the year. An addition to the Nursing Section establishment to maintain the required level of supervision of private hospitals and nursing homes was thus necessary, and was being sought.

Miss M. Bray is acting in the position in the interim.

4. Nurse Education

Six seminars organised by the Western Australian Branch, College of Nursing, Australia and funded through the Margaret Beard Memorial Fund have been conducted successfully in various parts of the State : from the Kimberley to the south-west.

Nine scholarships were awarded by the Minister for Health (Hon. Barry Hodge MLA) to Registered Nurses in Western Australia to undertake studies towards higher qualifications in tertiary level educational institutions. They are as follows:

Miss Beryl Cosgrove
Miss Patricia Furniss
Mrs. Elizabeth Manley
Miss Jeanette Robertson
Mr. James Still
Mrs. Bunjai Brooker
Miss Georgina Murphy
Mrs. Catherine Pugliese
Miss Terri Watkins

Sincere thanks to the staff of the Nursing Section for their support and application during the year. As well the co-operation of the officers of other Sections has been appreciated.

Appendix XII

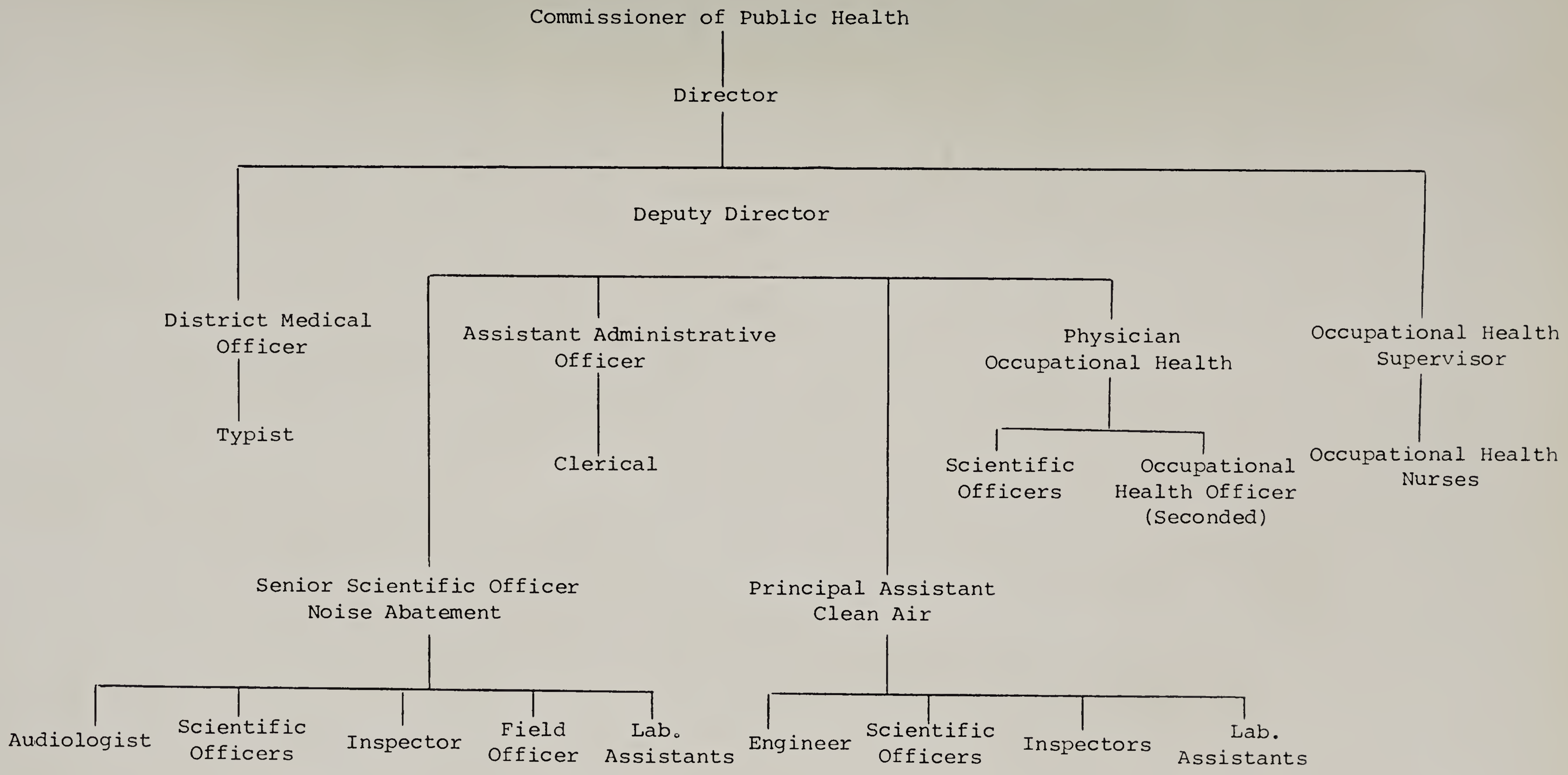
OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

SENIOR STAFF

Director : Dr. F. Heyworth
Deputy Director :
Dr. P. Psaila-Savona
Principal Assistant, Clean Air :
Mr. R. Powell
District Medical Officer :
Dr. R. Gillett
Physician, Occupational Health :
Dr. K. Wan
Principal Nurse - Occupational Health Nursing :
Sr. K. Howell
Senior Scientific Officer, Noise Abatement: Dr. P. Wilkins
Senior Scientific Officer, Occupational Hygiene :
Mr. G. Taylor
Assistant Administrative Officer :
Mr. T. Arnautovic

F. Heyworth
M.B., Ch.B., L.M.S.S.A. (Lond),
M.R.C.P., F.R.A.C.P., D.I.H. (Apoth),
D.I.H., (Conjoint) F.A.C.O.M.

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT - ORGANIZATION CHART


Commissioner of Public Health
Director
Deputy Director
District Medical Officer
Typist
Assistant Administrative Officer
Clerical
Physician Occupational Health
Scientific Officers
Occupational Health Officer (Seconded)
Occupational Health Supervisor
Occupational Health Nurses
Senior Scientific Officer Noise Abatement
Audiologist
Scientific Officers
Inspector
Field Officer
Lab. Assistants
Principal Assistant Clean Air
Engineer
Scientific Officers
Inspectors
Lab. Assistants

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

GENERAL

During the year public interest has increased and been heightened by discussions, seminars and media publicity. Hundreds of enquiries were received following publicity about asbestos to which the staff responded magnificently. My grateful thanks are extended to other departments and branches for their assistance in finding solutions to problems.

Departmental policy charges the Branch to propagate preventative practices which will lead to the improvement of health and safety in work places and the quality of the environment. A fundamental plank of this policy is the encouragement of self-regulatory practices aided by suitable advice and assistance from branch staff. Furthering this policy throughout the State entails particularly close co-operation with the Department of Industrial Affairs (formerly Department of Labour and Industry), the Mines Department and the Department of Conservation and Environment.

A major event of the year was the proclamation of the Hearing Conservation Regulations under the Noise Abatement Act on 21 October.

Health and safety in mining was prominent during the year with the development of a system by the Ventilation Board which measures any mine contaminants . This is known as the Contam System and replaces the previous Min-Dust System which only measured dust.

The number of silicosis cases maintains a downward trend. The Director was appointed Chairman of the Pneumoconiosis Medical Panel under the Workers' Compensation and Assistance Act. Regular "Health and Safety in Mining" meetings have been held, with union and employer representatives to consider specific issues. Discussions with gold and nickel industry representatives have been held with a view to increasing the industry use of occupational health nurses. Concern over low level radiation in the mineral sands industry has led to the formation of an interim Mines Radiation Safety Committee at the State X-Ray Laboratory.

Medical Examination of Miners and Workers in Dusty Trades

In accordance with practice in previous years, radiological surveys have been conducted in co-operation with the Perth Chest Clinic.

As required by the Mines Regulation Act, 1964-74, 2468 men who entered the mining industry during 1983 were examined and, as required by the Mine Workers' Relief Act, 1932-40, 4077 miners were re-examined.

In the examination under the Mine Workers' Relief Act, 119 miners were found to be suffering from silicosis, 4 from asbestosis and 6 from silico-asbestosis. Three of the silicosis cases were new cases.

For the tenth successive year there were no newly diagnosed cases of tuberculosis in miners.

FIGURE 1

Year	Total No. of examinations	Cases of Silicosis	Incidence of new cases of Silicosis	Rate per 10,000 examinations (Silicosis)
1925-29	13,800	-	847	614
1930-34	19,600	-	380	194
1935-39	34,100	-	111	33
1940-44	29,000	-	238	82
1945-49	26,000	-	293	113
1950-54	29,400	-	274	93
1955-59	30,200	-	259	85
1960-64	36,377	-	409	112
1965-69	36,477	-	196	53
1970-74	24,122	1,704	119	49
1975	8,696	302	35	40
1976	5,788	291	20	35
1977	7,414	242	18	24
1978	3,789	197	17	44
1979	3,712	197	10	27
1980	4,927	148	1	2
1981	3,781	115	5	13
1982	1,182	84	3	25
1983	4,077	119	3	7

The decrease in rate of silicosis per 10,000 examinations is once again reassuring. As the number of new cases is now very small, a shift of 1 case either way would have a dramatic change in the rate. Also the number of re-examinees representing the workers who are diehards in the industry is much less than in previous years.

The asbestosis, silicosis registers and a record of mesothelioma cases have been maintained. It is again emphasised that, although it is realised that the registers may be incomplete, and that they can only include known cases, they are nevertheless useful indicators of the annual position. It must also be observed that the figures given in the Registers are not only the cases diagnosed under the above quoted legislation but come from various sources such as the Pneumoconiosis Medical Panel established under the Workers' Compensation Act and Assistance Act.

REGISTERS

Year of Diagnosis	Mesothelioma	Asbestosis	Silicosis
Unknown	10	78	-
Pre 1974	18		-
1974	4		-
1975	9		-
1976	6		-
1977	9		-
1978	13	11	30
1979	7	9	26
1980	18	16	17
1981	18	8	18
1982	23	11	6
1983	20	14	8
TOTAL	155	147	105

Seventy-one cases of mesothelioma are known to have been associated with blue asbestos at Wittenoom.

Although the Cancer Registry is by Statute responsible for the registration of mesothelioma cases, the Occupational Health Branch continues to keep a record of all mesothelioma cases. While the Registry only registers cases which have been diagnosed in Western Australia, this Branch keeps in addition, a record of all those cases diagnosed in other States and overseas which may have had some connection with Western Australia by virtue of exposure to asbestos in Wittenoom.

Other Medical Examinations

Medical examinations have been conducted on workers exposed to isocyanates, paints, lead, mercury, pesticides and other occupational hazards. Under the Workers' Compensation and Assistance Act, Occupational Health Physicians have regularly represented this Branch on the Pneumoconiosis Medical Panel to assess claims for disability due to dust diseases. This panel has recently been reconstituted under the chairmanship of the Director of this Branch or his deputy in an effort to upgrade assessment of claimants. In addition, all chest x-ray examinations performed to monitor industrial exposure are doubly checked independently by both an occupational health and a chest physician.

Lung Function Survey of Quarries

A survey on lung function of quarry workers was conducted in 1983 by the Occupational Health Branch. It is heartening to report that there was no evidence of pneumoconiosis and this no doubt is an indication of improved working conditions. The need for continued routine periodical dust sampling is advocated to monitor the effectiveness of dust suppression and good ventilation.

Other Activities

Lectures on heat and cold, chemical poisoning, occupational cancer and occupational infectious diseases were given to students at the W.A. Institute of Technology, while lectures on occupational health and zoonoses were given to the veterinary medical students. Throughout the year, medical officers continued to lend support to the St. John Ambulance Occupational First Aid Course by providing lectures on a regular basis.

Branch physicians continue to represent the Department on the Occupational Health Committee of the National Health and Medical Research Council. In addition, the Branch is represented by a physician on a number of Departmental and Inter-Departmental Committees and/or Working Parties. These include the Medical Advisory Committee (Radiological Council), the Poisons Advisory Committee, the Medical Advisory Committee on Road Traffic Injuries, the Mesothelioma Committee, Wet Abrasive Blasting Cleaning using sand abrasive Working Party, Solvent Abuse Working Party and Asbestos Regulations Committee.

Help has been given throughout the year to many students on research projects. A medical student project under the supervision of Branch Officers on occupational exposure to pesticides was finalised and its findings were very informative.

DISTRICT MEDICAL OFFICE

Attendance at Police Department Surgery in 1983 totalled	5576
and at Fremantle Surgery (April - December 1983)	1978

Other figures are:

Pre-Employment Medicals	398
Eyesight Tests	112
Promotion/Diving	57
Driving Instructors	9
Licence Medicals (applications for renewal of special licences)	37
Other (Admin. etc.)	85

Court appearances as a result of appeals on Medical decisions relating to refusal of licence totalled 13.

Assessment of Fitness to Drive

There were 3,227 medical assessments. The number of assessments is higher than in the previous year. This relates mainly to the introduction of a medical assessment prior to re-issuing of a licence following suspension due to alcohol related offences.

The processing of medical assessments due to alcohol related driving offences is becoming increasingly difficult. Concern is expressed that the form is not meeting the principal objective, that is to certify that a person is addicted to alcohol and/or drugs.

The permanent Medical Advisory Committee on Road Traffic Injuries established in 1979 and now under the chairmanship of Dr. R.J. Gillett has met on a regular basis.

ABATTOIR OCCUPATIONAL HEALTH REPORT

An occupational health physician provides consultant service to the Western Australian Meat Commission, Robb Jetty Abattoir, in the operation of its inplant medical facility run by a full-time nursing sister.

Since 1981 the Occupational Health Branch has continued to provide a consulting service to the Meat Commission whereas in 1980 an occupational health physician from the Branch was providing an on-site service.

Year	Attendances	New reported injuries	Lost Time injuries	Workers' Compensation	% on Workers' Comp.
1979	12,658	2981	390	421	14
1980	16,033	3828	216	412	10.8
1981	12,654	4075	303	343	8.4
1982	12,191	4357	230	281	6.5
1983	11,632	3760	192	241	6.4

The percentage on workers' compensation for 1983 is 6.4 which is 0.1% less than 1982.

The Safety Committee held nine (15th to 23rd) meetings in 1983. Accident prevention activities for the year included the following:

1. Review of operations and performance by consultants from the Industrial Foundation for Accident Prevention (I.F.A.P.).

   Targets for reduction in lost time injury were set for various departments for the Industrial Safety Achievement Award project (Industrial Foundation for Accident Prevention/Colonial Mutual Safeway 1983/1984) for the period of six months from 1st August 1983 to 31st January 1984.

2. Causes of accidents for the previous 12 months were reviewed. Accident claims were reviewed to remedy unsafe practices and situations.

   A safety record board has been proposed.

3. Members of the Safety Committee were advised that the Noise Abatement (Hearing Conservation in Workplaces) Regulations were gazetted in October 1983 and were asked to note any areas or machines which could be a noise problem. Each department would be inspected for noise problems and following this a noise survey would be carried out.

   Once this is done, steps would be taken to reduce or eliminate the noise where practicable.

4. Medical examinations for certification of health for each individual employee to meet the European Economic Community (EEC) requirements were conducted on 355 employees by a medical practitioner engaged by the Meat Commission for the purpose.

OCCUPATIONAL HYGIENE

General

This part of the Branch's activities has contributed an important role in dealing with pesticide use and the physical working environment. A temporary scientific officer was employed for three months as a replacement for an officer attending an intensive course in occupational hygiene. Partly as a result of the new government's approach, ties have been further strengthened this year with the Construction Safety and Factories and Shops Branches of the Department of Industrial Affairs, with many joint visits carried out. An estimated 7,000 telephone enquiries were answered, the majority from the general public. Pesticide usage was a major topic of calls. There was a particular upsurge in September in enquiries on asbestos products and house insulation after media attention to asbestos-related disease. Provision of technical consultation in the field, in the office, in meetings and on the telephone in relation to occupational hygiene matters was stimulated this year by the attention given to the area by the new government.

Staff continued to serve on the executive of the Occupational Health Society of Australia in their own time. One member has been elected a councillor of the Australian Institute of Occupational Hygienists and accepted as an active member of the Permanent Commission and International Association on Occupational Health.

Pesticides

Face-to-face examinations for pesticide operators were conducted in conjunction with Pharmaceutical Services. Since October Pest Control has also assisted with the new practical tests introduced and conducted at Graylands. Correspondence examinations for country operators were conducted with the assistance of local authorities. Proposals for the Agriculture Department to assist in tests of country herbicide operators were accepted.

A series of new regulations to deal with problems in pesticides were put forward.

A booklet for homeowners on domestic pest control was published and received with ready acceptance.

Participation in the Rural and Allied Industries Council Farm Chemical Safety Committee continued. Visual symbol safety labelling proposals were developed as well as a proposed guide to the degree of hazard of different pesticides. Air sampling on tractors at three country locations, assisted by the Department of Agriculture was carried out. Staff and former staff served as expert witnesses in a civil case on pesticide contamination of poultry, investigated many cases of dangerous or non-approved use of pesticides, launched prosecutions and secured one conviction. A high degree of liaison with the United Pest and Weed Control Association was maintained. A study of pesticide operators' health by fifth year medical students was supervised by a staff member (together with occupational nursing). A survey and review of usage of ethylene dibromide as a fumigant was carried out because it is a suspect carcinogen, and a similar survey was carried out on wood preservatives.

Assistance in a study of nursing mothers and pesticide treatments continued.

Education Activities

Six lectures were given at the Bentley Technical College Industrial Pest Control Course, and an officer acted as examiner for one such course. Officers participated in a committee to rebuild the course to fit in with new two stage pesticide operator licensing requirements and worked on a Health Education Unit Committee organising a series of rural seminars on pesticide safety.

Lectures were given at asbestos seminars organised by two companies, one in connection with asbestos stripping of 126 U.S. navy houses at Exmouth. A series of lectures on occupational hygiene matters was given to Department of Industrial Affairs inspectors and to a Kalgoorlie School of Mines seminar. Lectures were given at an ANZAAS occupational health and safety seminar and on pesticides to horticultural faculty staff and to public meetings in Bindi, Southern Cross, Newdegate, Wyalkatchem, Wooroloo and to Forests Department workers in Grimwade and Nannup.

A booklet on spray-painting and health was published with the assistance of the Ergonomics Section, Health Education and Q.E. II Audiovisual Unit. Mailing of information sheets on request was continued.

Working Environment

Major assistance in measurement and analysis from the Government Chemical Laboratories continued. Occupational hygiene and pesticide operator surveys were carried out in Esperance, Geraldton, Bunbury, Albany, Derby, Broome, Kununurra, Wyndham and Carnarvon. Approximately 410 visits to workplaces in the metropolitan area were carried out. Surveys of particular problems included plating works, silica flour, foundries, brake and clutch repair shops, organophosphate pesticides in skin and hide works and spray-painters (particularly isocyanate paints which can induce chemical asthma). The 1982 fibreglass (styrene) survey was completed. Clients included companies, unions, Commonwealth and State Departments and statutory authorities, and IFAP. Moves have been made to ensure that all Commonwealth matters now involve initial liaison with the Commonwealth Department of Health, who then seek state assistance where required.

Problems included : cyanide and ammonia from a suburban carbon pulp gold extraction plant (classified as a mine), toluene poisoning, possible pesticide poisoning and degreaser poisoning incidents, chemical and pesticide manufacturers, cement works, MWA sewer pipe painting and fluoride handling, glue spraying solvents, art school chemicals, joinery wood dust, formaldehyde in wood glue, ethylene oxide in hospital sterilisers, thermal environment in laundries bakeries and offices, PCB's in transformers, zinc fumes in galvanisers, epoxy resin solvents, carbon disulphide vapour, ammonia in drafting offices, silica dust in potteries paint and glue manufacturers, vinyl chloride and lead in plastic tube extrusion, asbestos in boat engines at Carnarvon, pesticides on farms, glycol ethers in paint factories, hydrofluoric acid in laboratories, talc in rubber manufacture, sandblasting, grain dust and diesel engine fumes and particulate in country wheat storages, vanadium in used catalysts in an acid works, PVC welding in pipes, fumes and fibres at Westrail, pyridine as a solvent, lead in battery breakers, chromium in plating works, silica and furfuryl alcohol in foundries. A prosection over paint safety labelling was launched.

Factories requiring a carcinogenic substances licence to produce polyurethane were examined.

Officers carried out an inquiry into health problems at the CSIRO laboratories.

Although more a potential risk to maintenance workers than a real risk to workers in the buildings, many surveys and recommendations on limpet asbestos in buildings were performed.

Consultation and Review

Staff provided the secretariat for the committee to co-ordinate action on uses of asbestos, served on the newly formed W.A. Advisory Committee on Chemicals, assisted the Factory Welfare Board in relation to a herbicide factory and served on the Transport of Dangerous Goods Committee. Service (including after hours) to the Poisons Information Centre was continued.

A submission on the discussion paper on Occupational Safety and Health was prepared. Development and review of Department of Industrial Affairs Regulations on poisonous substances, abrasive blasting, fumes and dust and asbestos and review of issues before the Pesticides and Poisons Advisory Committees involved staff too.

Meetings of the Occupational Hygiene Sub-committee of the NHMRC were attended in Sydney and papers presented at the Australian Institute of Occupational Hygienists Conference in the same city.

Review of draft safety documents for the Standards Association was carried out.

Changes to toxic and hazardous substances legislation in relation to silica flour, asbestos and isocyanate-containing paints were proposed and accepted. Parliamentary questions were answered and a press release on country pesticide operator licensing prepared.

General and Environmental Health

Assistance continued to two urea-formaldehyde foam manufacturers to ensure a stable product free of health risks, and was phased out at year's end when results were satisfactory.

OCCUPATIONAL HEALTH NURSING

Staffing

The staff of nursing personnel achieved nominal full strength during 1983 with the employment of one full time occupational health nursing sister at the Perth office in January 1983, and one full time occupational health nursing sister at the Karratha office of the Occupational Health, Clean Air and Noise Abatement Branch in March 1983. The appointment of a second occupational health nursing sister in Perth enabled the occupational health nursing sister based at Kwinana to concentrate on the Kwinana area.

On the 14th February, 1983 the sister's position at the District Medical Office, Police Department, was also placed under this Branch, as part of a community health nursing reorganisation programme.

Education

A large percentage of all time and effort is spent on education, either on a one to one basis or at formal lectures, discussions or seminars. The nurses continued to give lectures at:

1. St. John First Aid Courses
2. Dental Therapists in service education
3. West Australian School of Nursing
4. Occupational Health Nurses Training Course, Western Australian Institute of Technology
5. Industrial companies.

Informal education is undertaken on most factory visits where problems have been identified and both management and workers are informed and counselled on correct and safe methods and practices.

The nurses themselves have attended seminars on occupational stress, occupational cancer, the hazards of asbestos. Two nurses have so far attended the one week audiometric officers course at Western Australian Institute of Technology and one nurse attended the two week Occupational Health Nursing Course at Western Australian Institute of Technology.

All the nurses have continued to act as resource and information sources for occupational health and other problems for other occupational health professionals management workers and the general public.

Health Surveillance

The occupational health nurses have been heavily involved in the health surveillance undertaken by the Branch. In conjunction with Perth Chest Clinic they arranged for industrial chest x-rays which were read by the occupational health physician and then tabulated and recorded.

Chest X-rays

Asbestos workers	424
Ex-Wittenoom workers	122
Miscellaneous workers (including foundry workers)	150
Sandblasters	126
	822

580 audiograms were undertaken by the nurses during this year. Due to the Hearing Conservation Regulations, it is expected that this number will greatly increase in 1984.

Miners' Health Survey

A survey of Class 'C' miners was carried out, covering quarries in the metropolitan area. As a preliminary to this, a control study of 32 staff members was implemented. Subsequently, 189 miners were surveyed having a medical questionnaire and a lung function test.

Two other industries, one of 164 workers and one of 17 workers were also surveyed in the same manner.

Biological Monitoring

Lead

Blood lead tests

Total number of tests	Number of repeats	Number RBC lead (> 6 micromol/L)
415	120	39

Urinary lead

Total number of tests	Number of repeats	Number varying from acceptable level
9	2	1

Pesticides

Dieldrin and Heptachlor Epox

Total number of tests	Number of repeats	Number varying from acceptable limit
109	7	7
DDE and DDT		
109	9	12

Red Blood Cell Cholinesterase		Number varying from acceptable limit
182	22	20
Plasma Cholinesterase		
182	22	-

Other Biological Monitoring Included:

Arsenic	(urine test)	8
Bromide	(urine test)	2
2,4-D, 2,4,5-T	(urine test)	14
Fluoride	(urine test)	156
Mercury	(urine test)	48
Methyl Bromide	(blood test)	2
MOCA	(urine test)	3
Selenium	(urine test)	1
Thallium	(urine test)	2
Vanadium	(urine test	4
Cadmium	(blood test)	4

Records

The registers of asbestosis, silicosis and mesothelioma incidence have been kept, and occupational and environmental histories obtained, as far as possible from known mesothelioma sufferers.

Factory Visits

Factory visits continue to be made, on a routine basis from Kwinana and Karratha and as necessary from Perth. These visits may be to deal with an urgent problem or may focus on apparent problems which appear at the time. Many visits are made in conjunction with inspectors of Department of Industrial Affairs and suitable talks and information given.

Country areas in the south west were the object of two short tours made on each occasion with one of the senior industrial hygienists, where many premises received much needed visits, some of these visits were in company of the Department of Industrial Affairs inspectors.

Factory Visits

Karratha	165
Kwinana	855
Perth	274

Treatments

Kwinana	811	- lung function tests 73
Perth	176	

District Medical Office -

Consultation	5816	
Recruit Medicals	393	
Vision Testing	109	
Cyclical Medicals	56	(promotion/diving)
Licence-driving instructions	46	
Other medicals	74	

Investigations Relating to Air Pollution Problems

Approximately 30 complaints, relating to clean air problems were passed to the sisters, who in turn visited the complainants and reported their findings to the Director, Occupational Health, Clean Air and Noise Abatement.

KINETICS - ERGONOMICS

Office ergonomics continues to produce the greatest number of enquiries and provides the majority of work. Numerous visits to office areas, especially those with visual display units, have been undertaken with the provision of verbal and/or written advice. A welcome trend is for organisations to request assistance prior to instituting change.

Through the Furniture Review Committee there has been an improvement in office furniture. During the year three types of chairs have been designed; operator, clerical and executive. These chairs have been evaluated and are in production. An adjustable height visual display unit table has been designed and is currently under assessment.

A revision of the Branch's booklet on V.D.U.'s has been completed.

KARRATHA OCCUPATIONAL HEALTH CENTRE

1. Personnel

Mrs. S. Haddon, Clerical Assistant (resigned December 2).

Mr. L.J. Hunter, Scientific Officer.

Sr. L.A. Mills, Occupational Health Sister (commenced Perth, March 14, Karratha, March 27)

2. General

The Pilbara was characterised in 1983 by economic stringencies and industrial difficulties.

These two factors contributed significantly to the essentially peripheral role played by the Karratha OHC in the Industrial Affairs of the Pilbara during the year.

Despite well established relations with all facets of industry, government departments, unions and the workforce, most of the centre's activity remains post factum.

3. Major Activities

The consideration and detection of atmospheric contaminants accounted for 75% of the centre's pursuits.

An increasing focus on asbestos developed throughout the year, as a result of formal decisions by Iron Ore Companies to adopt asbestos - free operations together with an increasing emphasis by unions on the scrutiny of operations involving asbestos.

Asbestos highlights one of the centre's main activities and also an across the board shortfall in the Pilbara, in that there continued to be poor information flow between occupational health professionals and the workforce.

Much of the centre's activity revolved around informal information exchange on all atmospheric contaminants, their physiological effects, significance and derivation of threshold limit values at the shop floor level.

Companies have repeatedly been urged to adopt such a course.

At the time of gazettal, the recently proclaimed hearing conservation regulations excited considerable attention, and a steady flow of enquiries concerning noise reduction and protective mechanisms has resulted.

The scientific officer undertook the WAIT-AID Noise Officers' Course.

The occupational health sister established contact and cordial working relationships with industries in the Karratha area.

4. Travel

The centre's vehicle covered 26,664 km.

NOISE ABATEMENT SECTION

The reorganisation of the Noise Section late in 1982 has resulted in the progressive redistribution of work activities amongst officers during this year. Dr. Wilkins took up the new position of senior scientific officer noise in November. His wide experience in acoustical engineering and occupational noise should strengthen the management of the section and encourage new developments in both the environmental noise and hearing conservation areas.

ENVIRONMENTAL NOISE

The Noise Section continued to deal on a daily basis with enquiries from the general public, local authorities, employers, trade unions and other government departments on noise related matters.

Specific noise sources were also investigated by the section for the following government departments and authorities:

1. Licensing Court of W.A.
2. W.A. Fire Brigades Board
3. Forests Department
4. Town Planning Department
5. Metropolitan Regional Planning Authority
6. State Energy Commission of Western Australia

A number of traffic noise measurements were also conducted.

While the Noise Abatement Act 1972-1981 does not contain any provisions relating to planned development and anticipated noise output there is a trend for authorities involved in planning and development to require environmental impact statements to deal with noise. A number of such statements were assessed during the year, and the number of these requests is expected to increase.

During the year the section provided Departmental representation at:-

1. Perth Airport Noise Abatement Committee meetings
2. Australian Acoustical Society Annual Conference
3. Perth Airport Municipalities Technical Officers Sub-Group
4. Perth Airport Municipalities Group

During 1983 numerous organisations applied to the Hon. Minister for Health for exemption from the Noise Abatement Act. These exemptions were processed by the section and included:

1. Festival of Perth Exemption
2. Hyde Park Festival Exemption
3. Aboriginal Arts in Perth '83 Festival Exemption
4. City of South Perth Tree Chipping Exemption
5. City of Canning Tree Chipping Exemption
6. St. John the Baptist Festival Exemption
7. Pile Driving Exemption
8. Fremantle Week Motor-cross Exemption
9. Port 'n' Country Music Festival Exemption
10. Australian Broadcasting Corporation/W.A. Symphony Orchestra Parkerville Concert Exemption
11. Australian Broadcasting Corporation/W.A. Symphony Orchestra Supreme Court Gardens Concert Exemption.

Throughout the year the section responded to the requests of the Noise and Vibration Control Council and the Noise Abatement Advisory Committee for reports on and investigations of matters considered by them.

Educational activities in the community noise field have expanded. The planning and design of an advisory pamphlet for the general public has been completed.

HEARING CONSERVATION

The most important event of the year was gazetting of the Noise Abatement (Hearing Conservation in Workplaces) Regulations on 21 October, 1983. Due to this, there was a change in emphasis from carrying out noise and audiometric surveys, to undertaking work related to preparation for the introduction of the Regulations. This included, preparing the final draft of the Regulations; writing summary guidance notes to the Regulations; finalising requirements for approval of noise officers, audiometric officers and approved medical practitioners; participating in lecturing and examining for three noise officers and four audiometric officers courses; developing criteria for approval of sound measuring equipment and calibration methods; compiling lists of agents for sound measuring equipment, audiometers, audiometric booths and hearing protection, and companies interested in providing audiometric or noise survey services; writing articles on noise and the Regulations for the Confederation of Western Australian Industry and the Industrial Foundation for Accident

Prevention journals; presenting papers at seminars organised by the aforementioned and by the Safety Institute; and organising material and demonstrations for the Press Conference to launch the Regulations.

Noise Surveys

No full noise exposure assessment surveys were carried out this year. Noise assessments of particular areas or machines were conducted for ten organisations including 2 banks, 2 hospitals, a local authority, a government laboratory and 4 small companies. The majority of these were conducted in response to requests from management, following workers' complaints and were found to involve annoying noise rather than noise levels that could be expected to be damaging to hearing. One measurement was conducted at the request of a Department of Labour and Industry Inspector. Measurements of background noise in areas where it was desired to carry out audiometric testing were taken at the request of two medical practitioners.

Education

Educational activities in hearing conservation have continued with an ongoing programme educating management and employees. Advisory talks on setting up hearing conservation programmes were held with the managements of 13 companies and 10 government agencies. Discussions were held with groups of employees from 4 government departments involving 32 sessions in all. In addition more detailed advice on noise control strategies was given to 3 companies, 2 government agencies and 2 workshops employing handicapped people.

Audiology

A total of 171 audiograms were obtained during the year. Two large audiometric surveys were performed with employees of the Sunday Times and Skywest Airlines.

Hearing Conservation Mobile Unit

Specifications for a new hearing conservation promotion vehicle were finalised and put out to tender. On nearing completion, staff from the section assessed the acoustic characteristics of the audiometric facilities in the unit. It is expected that final work on the unit will be carried out in the first half of 1984.

NOISE INSPECTIONS

Inspections have covered both environmental and occupational noise on a daily basis. Among these inspections have been shopping centres, pool pumps, airconditioners, ventilation system, sound insulation problems, public halls, bird scare system, quarry blasting and factory noise. In addition a number of inspections of proposed audiometry facilities have been made.

Advice has been provided on a daily basis to local authorities, government departments and others on noise control matters and aspects of legislation. A Noise Inspector Refresher Course and assessment were held. The refresher course was attended by approximately 40 inspectors and prospective inspectors. The seminar dealt with legal aspects of noise legislation and was of considerable benefit to all the participants. It is envisaged that further seminars will be held in the future.

NOISE LABORATORY

The laboratory calibrated 31 sound level meters and 18 audiometers for various authorities. In addition, to provide this calibration service the laboratory staff were also involved in the maintenance and servicing of the section's own equipment. Preparations were commenced for an expected increase in the number of requests for calibration services which is expected as government departments and agencies, and local authorities take up their responsibilities as employers under the new Hearing Conservation Regulations. When commitments permitted, some further fitting out of the Environmental Noise Monitoring Van was performed.

CLEAN AIR SECTION

The activities of the section are described under the following headings:

A. MONITORING OF AIR POLLUTANTS
B. SPECIAL INVESTIGATIONS AND TESTING
C. ADVISING ON AIR POLLUTION CONTROL AND EDUCATION
D. COMPLAINTS AND STATUTORY DUTIES

A. MONITORING OF AIR POLLUTANTS

1. Dust Monitoring

The Central Electricity Research Laboratories (CERL) directional dust gauge and the standard New South Wales glass deposit gauges are used in W.A.

Perth Area

At the end of 1983, 24 CERL gauges and increase of 4 over 1982 were sited in the metropolitan area as follows:

City Beach
East Perth
Lathlain Park
Rivervale (2)
Gosnells (2)
Osborne Park*
Perth Airport
Welshpool
Kewdale
Maddington (2)
Armadale
Palmyra**
Munster (2)
Hazelmere
Naval Base
Baldivis (3)
Noranda
Kwinana**

* 2 months only
**7 months only.

For results see Appendix A.

The results for deposit gauges situated at City Beach, East Perth, Belmont, Parmelia, Welshpool and Naval Base are shown in Appendix B.

Port Hedland

Six gauges were maintained in Port Hedland during 1983 and were located as follows:

Gauge No.	Location
1	Anderson Street, Port Hedland
2	Howe Street, near Hospital
3	Spinifex Hill, near Shire Office
4	Cooke Point
5	Leslie Salt, Redhill
6	Stanley Street, South Hedland

The dust samples from each gauge were collected by officers of the Shire of Port Hedland and processed in the section's laboratory in Perth. For results see Appendix C.

Cape Lambert/Dampier/Karratha

Eight CERL dust gauges were maintained in the area during 1983 and located as follows:

Gauge No.	Location
1	Port Area, Port Sampson
2	Immediately South of Port area
3	North of Wickham Town site
4	South of Wickham Town site
5	Parker Point, Dampier
6	Bowling Club, Dampier
7	Karratha Airport
8	Fire Station, Karratha

The Health Surveyor of the Shire of Roebourne has continued to collect the dust samples, maintain the gauges in the area and forward the samples to Perth for processing. For results see Appendix D.

Kalgoorlie

Seventeen CERL gauges are processed for the Goldfields Dust Abatement Committee and located as follows:-

Gauge No.	Location
1	Trafalgar Townsite
2	Lionel Street
3	Mafeking Street
5	Lane Street
6	Chesapeake Street, Boulder

7	Burt Street
9	Maritana Street
10	North Kalgoorlie Primary School
11	Killarney Street, Lamington
12	Piccadilly Street
14	Gt. Eastern Highway, West Kalgoorlie
15	Boulder Rifle Range
16	Kambalda Road, Mt. Hunt
18	Brown Hill
19	Bulong Road, East Kalgoorlie
20	West Kalgoorlie
21	East of Trafalgar

For results see Appendix E.

2. Particulate Monitoring

The United States Environmental Protection Authority high volume sampler is used in W.A.

Perth City

Four samplers are sited in the city:

a) Bureau of Meteorology, Hill Street, Perth, sample point 10 metres above ground and 10 metres from the pavement.

b) Queens Buildings, William Street, Perth, sample point 5 metres above pavement.

c) State Energy Commission, Murray Street, Perth, sample point 5 metres above pavement.

d) Occupational Health, 57 Murray Street, Perth, sample point 1.5 metres above ground, 2 metres from pavement.

e) Telecom, Murray Street, Perth, sample point 1.5 metres above the rear of pavement.

The collected particulates are analysed for lead by the Government Chemical Laboratories and the Western Australian Institute of Technology.

For results see Appendix F.

Kalgoorlie Hospital

High volume sampling was commenced at the Kalgoorlie Hospital in June 1983.

For results see Appendix G.

Port Hedland

The Department is grateful to officers of Mt. Newman Mining Company who maintained four high volume samplers in Port Hedland during 1983. The samplers are located as follows and the results shown in Appendix H.

Sampler No.	Location
1	Howe Street, near Hospital
2	Swimming Pool, near Shire Offices
3	Stanley Street, South Hedland
4	Port Hedland Airport

3. Sulphur Dioxide

Perth Metropolitan Area

Monitoring of sulphur dioxide and smoke has continued, at 12 sites, but only with the help of residents in the many suburbs who have continued to assist the Clean Air Section by accommodating and operating these samplers in their homes. The Public Health Department wishes to thank them all for their most valuable help. For results see Appendices I and J.

South Fremantle

Monitoring of sulphur dioxide was carried out in the South Fremantle area in conjunction with the State Energy Commission and the results shown in Appendix K.

Kalgoorlie

Western Mining Corporation staff have continued to maintain the section's monitors in the Kalgoorlie and Boulder area. For results see Appendix L.

In February 1983, a continuous sulphur dioxide monitor was installed at the Kalgoorlie Technical School. Summaries of the results are presented in Appendix M.

The continuous monitor at the Kalgoorlie Regional Hospital continued to operate satisfactorily. For results see Appendix N.

Bunbury

Monitoring of sulphur dioxide was carried out in the Bunbury area in conjunction with the State Energy Commission and the results shown in Appendix O.

4. Oxides of Nitrogen

The sampling site at 57 Murray Street, Perth, has continued to be operated on a 24 hour basis during 1983. For results see Appendix P.

5. Carbon Monoxide

Monitoring for carbon monoxide has continued at 57 Murray Street, Perth. For results see Appendix Q.

6. Lead

Lead was monitored in the city by the high volume sampler method during the year. The results are shown in Appendix R.

B. SPECIAL INVESTIGATIONS AND TESTING

1. Superphosphate Works

Five superphosphate manufacturing plants were tested during the year. For results see Appendix S.

Vineyard Monitoring

Ambient air monitoring of fluorides ceased during the 1982/83 growing season following the withdrawal of complaint. The joint monitoring program is scheduled to commence in the 1983/84 growing season was deferred owing to budget restraints and resultant priority reassessments.

2. 2,4-D Monitoring at Geraldton

Officers of the section continued to support the Agriculture Department with monitoring and general assistance.

3. Source Testing

Source sampling has been carried out at eight works during 1983 using the USEPA source sampling train. A sulphuric acid plant was tested for sulphuric acid mist and sulphur dioxide emissions, all other works chimneys were tested for particulate emissions.

The results are shown in Appendix T.

Besides testing for particulates, two sulphuric acid plants were tested for acid mist and acid gases. Also a nitric acid plant was tested for nitrogen oxides.

4. Miscellaneous

The Clean Air Section continued to support other government departments, local authorities, and private companies when called on during the year.

C. ADVISING ON AIR POLLUTION AND EDUCATION

As in past years, numerous enquiries were received by the Clean Air Section from students and the public for information on air pollution and allied matters. Lectures were given to various professional organisations and tertiary educational institutions.

Senior staff members were required to attend miscellaneous meetings to give advice on matters pertaining to air pollution.

D. COMPLAINTS AND STATUTORY DUTIES

During the year similar numbers of complaints received in past years were again dealt with. The cause of the complaints varied from dust to odours, originating from a wide range of industries and commercial premises.

Routine inspections and special inspection of industrial premises were carried out by the section's officers as required by the Scientific Advisory Committee and the Air Pollution Control Council.

All meetings of the Scientific Advisory Committee and the Air Pollution Control Council, or special sub-committee meetings, were attended by the principal assistant or senior officers of the section.

All meetings of the Ventilation Board established under the Mines Regulation Act 1946-1974 were attended by a senior officer of the Clean Air Section.

E. STAFF

a) The principal assistant is the Public Health Department's nominee to sit on the National Health and Medical Research Council/A.E.C. Joint Committee to review National Emission Standards for air pollutants.

b) A scientific officer is a member of the Australian Standards Association of Australia "Committee for the Examination of Air".

APPENDIX A

DUST TESTING PROGRAMME - PERTH METROPOLITAN AREA, 1983

GAUGE	TOTAL DIRTINESS
City Beach	2.1
East Perth	1.7
Lathlain Park	1.8
Rivervale 1	1.8
Rivervale 5	3.1
Perth Airport	2.2
Kewdale 1	2.8
Maddington 1	3.8
Maddington 2	1.9
Gosnells 2	1.4
Gosnells 3	2.6
Hazelmere	1.9
Welshpool 2	2.2
Naval Base 2	2.8
Munster 2	2.9
Munster 5	2.5
Armadale 1	1.4
Baldivis 1	2.6
Baldivis 2	1.8
Baldivis 3	3.0
Osborne Park	1.1*
Noranda	1.2
Palmyra	1.5**
Kwinana 6	4.4**

* 2 months only
**7 months only.

APPENDIX B

DEPOSIT GAUGES - 1983

Deposition (milligrams per sq. metre per day)

Sampling Point	Total Insolubles	Total Inorganic
Belmont	18	6
City Beach	38	20
East Perth	25	10
Welshpool	26	12
Naval Base	96	51
Parmelia	26	10

APPENDIX C

DUST TESTING PROGRAMME - PORT HEDLAND 1983

Mean total dirtiness-dust concentration and mean per cent iron ore in total dust from dust gauges for the twelve months period January - December, 1983.

Gauge No.	Location	Total Dirtiness Dust Concentration	Per cent Iron Ore
1	Anderson Street, Port Hedland	12.9	40
2	Howe Street, near Hospital, Port Hedland	6.9	41
3	Spinifex Hill	9.7	21
4	Cooke Point, Port Hedland	1.9	10
5	Leslie Salt, Redhill	5.6	12
6	Stanley Street, South Hedland	1.7	6

APPENDIX D

DUST TESTING PROGRAMME -CAPE LAMBERT/DAMPIER/KARRATHA

Mean total dirtiness-dust concentration and mean per cent iron ore in total dust from dust gauge for the twelve months period January - December 1983.

Gauge No.	Location	Total Dirtiness Dust Concentration	Per Cent Iron Ore
1	Port Area, Port Sampson	1.8	-
2	Immediately S. of Port Area	2.4	-
3	North of Wickham Town Site	1.6	-
4	South of Wickham Town Site	2.1	-
5	Parker Pt. Dampier	4.9	20
6	Bowling Club, Dampier	4.5	47
7	Karratha Airport	11.4	7
8	Fire Station, Karratha	24.1	9

APPENDIX E

DUST TESTING PROGRAMME, FOR THE GOLDFIELD DUST ABATEMENT COMMITTEE, KALGOORLIE/BOULDER DISTRICT

Mean total dirtiness- dust concentration from dust gauge for the twelve months period January - December 1983

Gauge No.	Total Dirtiness Dust Concentration
1	14.3
2	3.9
3	11.9
5	3.3
6	3.6
7	2.8
9	4.0
10	3.2
11	2.7
12	3.8
14	3.0
15	1.9
16	2.8
18	6.2
19	3.0
20	2.1
21	17.4

APPENDIX F

PARTICULATES HIGH-VOLUME SAMPLING PERTH CITY 1983

(All results in micrograms per cubic metre of air)

Site	Annual Average	Highest 24 Hour
Bureau of Meteorology	39	81
Cnr. Murray and William Streets	50	90
S.E.C. Murray Street	45	82
57 Murray Street	54	107
Telecom, Murray Street	41	87

APPENDIX G

PARTICULATE HIGH - VOLUME SAMPLING,

KALGOORLIE HOSPITAL 1983

(All results in micrograms per cubic metre)

	Monthly Average	Maximum Daily Concentration
January	-	-
February	-	-
March	-	-
April	-	-
May	-	-
June	86	146
July	45	71
August	35	66
September	55	103
October	49	68
November	59	149
December	48	79

Arithmetic mean : 54
Geometric mean : 48

APPENDIX H

HIGH VOLUME SAMPLING, PORT HEDLAND

(All results micrograms per cubic metre)

HOWE STREET (NEAR HOSPITAL)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	77	43	34	47	148	73	32	54	42	66	70	57
Maximum Daily Concentration	167	68	49	109	287	92	45	66	56	100	162	113

Annual arithmetic mean : 62 Annual geometric mean : 55

SWIMMING POOL (NEAR SHIRE OFFICES)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	60	39	32	30	29	27	31	35	35	42	39	72
Maximum Daily Concentration	94	53	45	36	34	42	32	48	50	86	45	141

Annual arithmetic mean : 39 Annual geometric mean : 35

STANLEY STREET (NEAR PWD PRESSURE TANK)

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	39	28	16	18	23	22	33	27	32	30	33	-
Maximum Daily Concentration	51	46	22	23	25	25	35	30	42	37	48	-

Annual arithmetic mean : 27 Annual geometric mean : 23

AIRPORT

	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Monthly Average	45	29	13	14	11	14	17	21	40	36	43	29
Maximum Daily Concentration	56	43	23	23	11	18	19	25	74	61	56	29

Annual arithmetic mean : 26 Annual geometric mean : 22

APPENDIX I.

SULPHUR DIOXIDE CONCENTRATIONS

PERTH METROPOLITAN AREA

1983

All results expressed in micrograms per cubic metres.

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR	ANNUAL AVERAGE
Perth	9	11	19	13	12	7	11	7	10	14	18	20	51 49 45 44 43 43 42	13
Bentley	9	5	5	5	5	2	3	1	2	4	5	4	44 39 29 27 25 21 21	4
Banganup	11	11	8	3	3	1	1	1	6	10	9	9	52 51 47 44 34 34 34	6
Claremont	10	7	6	9	6	4	4	2	4	10	6	8	21 29 28 27 26 24 23	6
Hillman	33	13	2	2	5	3	3	3	2	1	1	2	54 54 49 49 47 46 44	6
Inglewood	20	9	8	4	4	1	1	1	3	6	5	8	44 40 31 30 28 27 26	6
Medina	32	15	5	6	7	5	6	8	6	4	3	4	77 63 52 44 44 43 42	9
Orelia	22	15	12	12	10	6	5	6	8	6	4	11	58 50 47 43 42 40 40	10
Rockingham	26	8	7	4	5	3	5	2	1	1	1	2	59 54 48 42 38 33 32	5
Wembley Downs	-	2	1	3	2	1	1	0	1	3	3	4	15 14 13 12 12 12 11	2
Lynwood	14	5	4	4	5	2	2	1	4	8	7	38	33 33 31 29 27 24 24	5
Hope Valley	-	-	-	-	-	-	-	-	-	15	13	13	44 43 36 35 32 30 29	14

APPENDIX J

METROPOLITAN SMOKE READINGS 1983

Site	Annual Average
Perth	6
Bentley	4
Banganup	2
Claremont	5
Hillman	3
Inglewood	6
Medina	2
Orelia	3
Rockingham	3
Wembley Downs	5
Lynwood	3
Hope Valley	2*

*2 months only.

APPENDIX K.

SOUTH FREMANTLE SULPHUR DIOXIDE CONCENTRATIONS 1983

All results in micrograms per cubic metre.

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR	ANNUAL AVERAGE
Cockburn Rd Spearwood	-	-	-	-	-	-	-	0	1	4	3	3	20 15 11 9 8 8 5	2
Hamilton Hill Shopping Centre	-	-	-	-	-	-	-	0	1	3	2	1	20 12 8 7 7 6 6	1
Cockburn Shire	-	-	-	-	-	-	-	0	2	2	2	1	11 10 8 7 7 7 6	1
Strang Street	-	-	-	-	-	-	-	1	1	5	3	2	20 12 12 12 11 10 10	2

APPENDIX L

KALGOORLIE/BOULDER SULPHUR DIOXIDE CONCENTRATIONS 1983

All results expressed in micrograms per cubic metre

SITE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	SEVEN HIGHEST 24 HOUR VALUES							ANNUAL AVERAGE
BOULDER Moran St.	83	95	68	46	38	12	14	22	-	-	-	-	292	280	222	215	208	182	180	47
KALGOORLIE Whitlock St.	50	79	48	41	37	10	18	12	-	-	-	-	392	242	221	203	195	188	185	47
LAMINGTON Campbell St.	85	68	58	26	36	7	10	11	-	-	-	-	203	198	169	156	150	145	143	38
LAMINGTON Killarney St.	61	36	23	21	25	6	11	16	-	-	-	-	199	156	140	138	131	112	104	25
BOULDER Nth. Kalgurli Lease	92	108	62	39	28	14	30	15	-	-	-	-	449	334	276	259	245	244	214	49

APPENDIX M

SULPHUR DIOXIDE CONCENTRATIONS

KALGOORLIE TECHNICAL SCHOOL 1983

Results in micrograms per cubic metre at STP

MONTH	DATA RECOVERY %	HIGHEST 1 HR. AV.	HIGHEST 3 HR. AV.	HIGHEST DAILY AV.	MONTHLY AVERAGE
FEB.*	96.4	1568	971	349	141
MARCH	50.6	1433	799	233	94
APRIL	99.3	1567	974	219	69
MAY	99.6	2222	1174	419	63
JUNE	96.3	1815	622	161	35
JULY	99.1	1813	1195	181	30
AUG.	98.2	1172	568	100	29
SEPT.	92.3	2799	1491	282	55
OCT.	27.5	1475	1164	404	146
NOV.	-	-	-	-	-
DEC.	-	-	-	-	-

*12 days only. Monitor installed 17th February, 1983.

APPENDIX N

SULPHUR DIOXIDE CONCENTRATIONS

KALGOORLIE REGIONAL HOSPITAL 1983

Results in micrograms per cubic metre at STP

MONTH	DATA RECOVERY %	HIGHEST 1 HR. AV.	HIGHEST 3 HR. AV.	HIGHEST DAILY AV.	MONTHLY AVERAGE
JAN.	89.3	975	689	101	29
FEB.	90.8	1391	890	245	55
MARCH	99.1	1478	738	143	32
APRIL	97.4	3093	1380	210	58
MAY	88.3	3107	1232	237	61
JUNE	96.1	2625	1030	199	25
JULY	99.1	2425	1259	190	38
AUG.	99.5	1056	594	98	18
SEPT.	99.1	1912	1075	151	18
OCT.	99.3	2473	1842	307	59
NOV.	98.5	1649	981	272	55
DEC.	98.5	1581	657	176	41

APPENDIX O

BUNBURY SULPHUR DIOXIDE CONCENTRATIONS 1983

All results in micrograms per cubic metre

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR	ANNUAL AVERAGE
CAMBROSE AVE AUSTRALIND	5	5	3	12	4	1	2	-	-	-	-	-	155 90 62 56 49 46 33	5
BUNBURY INNER HARBOUR SUB-STATION	2	1	1	1	2	1	1	-	-	-	-	-	10 7 7 7 6 5 5	1
P.W.D. YARD BUSWELL ST. RATHMINES	2	0	1	3	2	2	4	-	-	-	-	-	40 34 12 10 10 10 7	2
BUNBURY HARBOUR HENRY ST. SUB-SECTION	4	3	7	7	4	6	1	-	-	-	-	-	40 31 29 28 21 21 19	5
AUSTRALIND	-	-	-	-	-	1	2	-	-	-	-	-	28 9 4 3 2 2 2	-

APPENDIX P.

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS 1983

All results expressed in micrograms per cubic metre

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	HIGHEST 24 HOUR AVERAGE	LOWEST 24 HOUR AVERAGE	ANNUAL AVERAGE
PERTH	37	37	40	64	80	74	81	51	47	33	38	28	201	3	51

APPENDIX Q

CARBON MONOXIDE AT 57 MURRAY STREET, PERTH

Results in parts per million

1983	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Average	-	-	0.6	0.8	1.1	1.3	1.2	-	1.6	0.7	0.5	0.7
Highest 1 hour Average	-	-	4.6	5.0	6.1	9.5	10.5	-	4.6	3.0	1.8	4.6
Highest 8 hour Average	-	-	2.0	3.0	3.6	5.3	5.0	-	2.2	1.9	1.2	3.6

Yearly Average : 0.7

APPENDIX R

24 HOUR HIGH-VOLUME SAMPLING OF AIRBORNE LEAD IN 1983

micrograms per cubic metre

Sampling Site	Jan Feb Mar	Apr May Jun	Jul Aug Sep	Oct Nov Dec
Queen's Buildings				
William Street, Perth 4.5m above pavement	2.1	3.0	3.1	1.9
S.E.C.				
Murray Street, Perth 5m above pavement	1.6	2.3	2.6	1.2
P.H.D.				
57 Murray Street, Perth 1.5m above, 2m behind pavement	2.1	2.9	2.8	2.0
Bureau of Meteorology				
Perth 10m above ground 10m from pavement	0.6	1.0	1.3	0.6
Telecom				
Murray Street, Perth 1.5m above rear of pavement	0.8	1.3	2.0	0.6

APPENDIX S

FLUORIDE EMISSIONS FROM SUPERPHOSPHATE WORKS

1983

Location	Kilograms/hr of Fluoride
Albany	0.15
Bunbury	0.18
Esperance	0.02
Geraldton	0.08
Kwinana	0.33

APPENDIX T

SOURCE TESTING 1983

(a) PARTICULATES

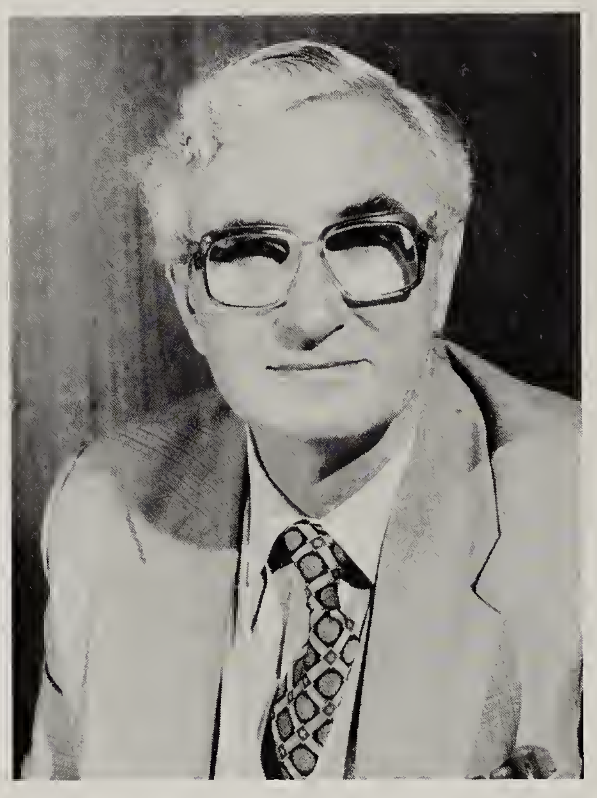
DESCRIPTION OF WORKS	TEST PERIODS	LOCATION	AVERAGE PARTICULATE EMISSION (gram per cubic metre of flue gas corrected to o°C, and 1 atmosphere dry)
Power Station	1	South Fremantle	0.27
Bitumen Plant	1	Osborne Park	0.15
	1	Welshpool	0.08
	1	Herne Hill	0.17
Cement Works	1	Rivervale	0.01
	1	Munster	0.12
Lime Plant	2	Munster	0.05
Nickel Smelter	1	Kalgoorlie	0.34
Incinerator	4	Shenton Park	0.43

(b) GASEOUS

DESCRIPTION OF WORKS	TEST PERIODS	LOCATION	AVERAGE EMISSION (gram per cubic metre of flue gas corrected to o°C, and 1 atmosphere dry)
Sulphuric Acid Plant	3	Australind Acid Mist (as SO_3)	0.07
		Acid Gases (as SO_3)	16.0
	1	Picton Acid Mist (as SO_3)	0.06
		Acid Gases (as SO_3)	11.0
		Nitrogen Oxides (as NO_2)	0.54
Nitric Acid Plant	4	Kwinana Nitrogen Oxides (as NO_2)	4.81

Appendix XIII

PHARMACEUTICAL SERVICES BRANCH

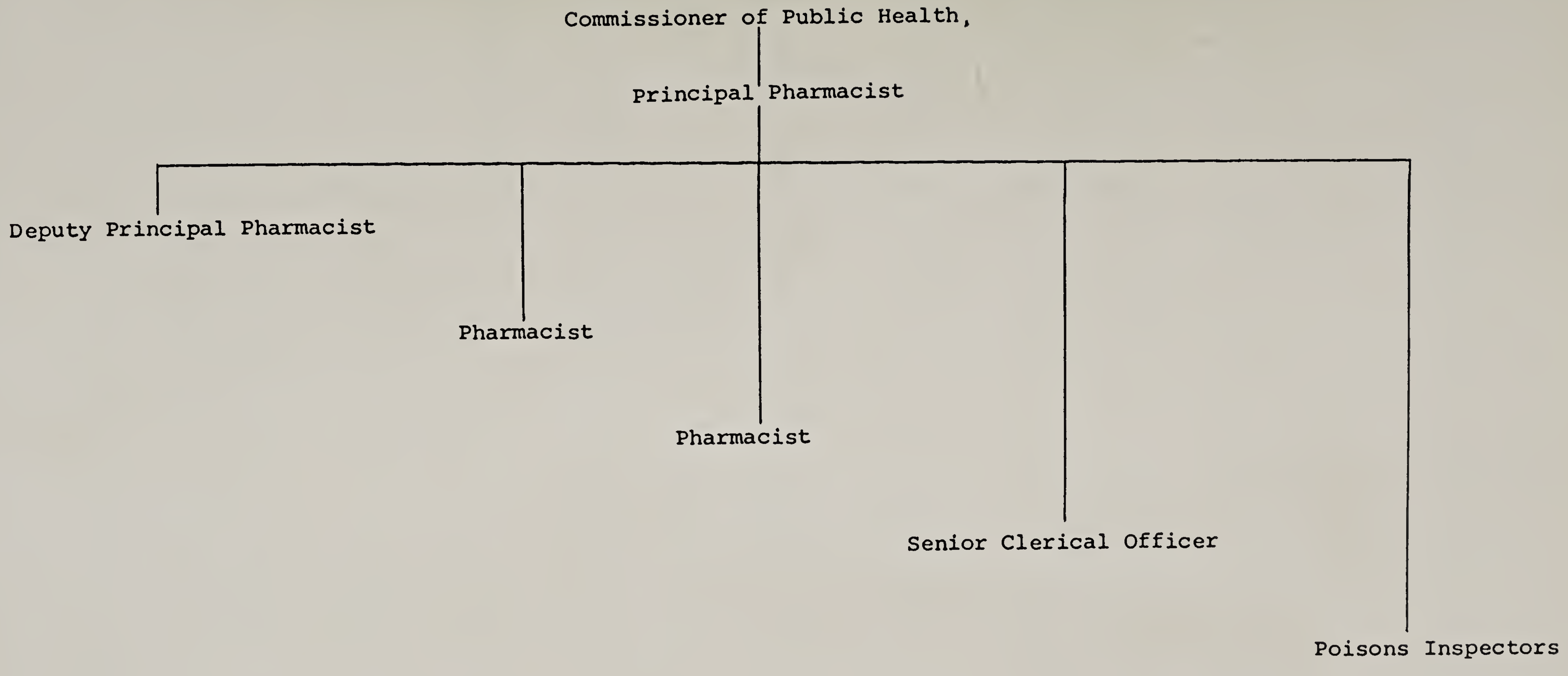


W.M. Griffiths,
B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

SENIOR STAFF

Principal Pharmacist :
Mr. W.M. Griffiths
Deputy Principal Pharmacist :
Mr. G.F. Foley
Pharmacist : Mr. M. Cousins
Pharmacist : Mrs. J.A. Luke
Senior Clerk : Mr. J. Chilby

PHARMACEUTICAL SERVICES BRANCH - ORGANIZATION CHART



PHARMACEUTICAL SERVICES BRANCH

The Pharmaceutical Services Branch is responsible to the Commissioner for the day-to-day administration of the Poisons Act, Poisons Act Regulations, Pesticides Regulations, certain aspects of Therapeutic Goods, the oversight of pharmaceutical services to government hospitals, and liaison, when necessary, with the Pharmaceutical Council.

The Branch provides the secretariat for the Poisons Advisory Committee, Pesticides Advisory Committee and the Pest Control Operators Committee, and also provides representative members on the Inter-hospital Pharmacists Advisory and Liaison Committee, the Tender Board Advisory Committee for Drugs, the Technical Committee on Agricultural Chemicals, Poison Schedule Standing Committee of the National Health and Medical Research Council, National Therapeutic Goods Committee and ad hoc meetings relevant to Branch matters.

Close liaison is maintained with the Alcohol & Drug Authority concerning supplies of drugs of addiction.

ADMINISTRATION

Mr. Bill Griffiths, Principal Pharmacist and Mr. Gerry Foley, Deputy Principal Pharmacist continued their attendances at various committees associated with the work of the Pharmaceutical Services Branch.

Mr. Michael Cousins, Pharmacist, continued to collate and prepare the working papers for the Pesticides Advisory Committee, reply to enquiries on pesticides received from industry, other government departments and the general public and liaise with the Department of Agriculture in regard to enquiries on pesticide uses. Close liaison is also maintained with Government Chemical Laboratories.

Mr. Cousins attended two meetings of the National Therapeutic Goods Committee on behalf of the Department and continued to assist in the examination of prospective pest control operators.

Mrs. Joyce Luke, Pharmacist, continued her role in administering the Poisons Act Regulations by replying to enquiries on poisons and hazardous substances received from industry, the general public and other government departments and examination of labels and packages of poisons.

The Branch continued to monitor supplies of drugs of addiction. Mrs. Luke is the confidential officer responsible for communication with health professionals on matters concerning patients in relation to certain controlled medications, as well as licensing and inspection reports concerning poisons. Mrs Luke. is also Minutes Secretary for the Poisons Advisory Committee and plays a major role in preparing and collating the working papers and minutes of this Committee.

NEW APPOINTMENT

Miss C. Clydesdale replaced Miss S. Pollard as Clerical Assistant for the Branch in May.

Miss S. Davidson commenced duties in June as a C-IV Clerk in a new position, created to assist in the general running of the office as well as to update the registered pesticides on the computer system (PESTWA).

Mrs. T. Holmes replaced Miss C Sheahan as typist in September.

POISONS

During the year there were six meetings of the Poisons Advisory Committee. A special meeting of this Committee was also convened to discuss buprenorphine alone.

Eleven new wholesale licences were granted, each involving an inspection of the premises and a written report by one of the poisons inspectors. Any changes to wholesale licence holders or addresses of premises were inspected and a report written before approval was granted for continuing operations. The poisons inspectors made 632 visits to pharmacies during the year. There are 429 licenced pharmacies in Western Australia.

One hundred and sixty printed label drafts for poisons were assessed in addition to assessments on poisons labels and other general enquiries. Close liaison with the Registrar, Veterinary Preparations and Animal Feeding Stuffs is maintained to ensure that all veterinary products are labelled in accordance with the Poisons Act Regulations.

The Poisons Schedules were amended on 14 January and the Poisons Act Regulations were amended on 28 January and 23 September (with regard to drugs of addiction).

Buprenorphine was added to the Poisons (Specified Drugs) Order on 23 September.

The conditions, restrictions and limitations on the sale, supply, use and possession of the poisons specified in the Seventh Schedule were amended on 28 January.

Five successful prosecutions were instituted for breaches of the Poisons Act Regulations.

Several more prosecutions were commenced in 1983, with no outcome decided by the end of the year, these include one which involved six test purchases.

PESTICIDES

During the year there were eleven meetings of the Pesticides Advisory Committee. Pesticide formulations registered as at 31 December numbered 1363. Two hundred and forty new applications were received, of these 183 were approved for registration, 19 were held awaiting further consideration and one application was withdrawn.

Ninety-eight applications were received for clearance of new agricultural chemicals or new uses in co-operation with the National Technical Committee on Agricultural Chemicals based in Canberra.

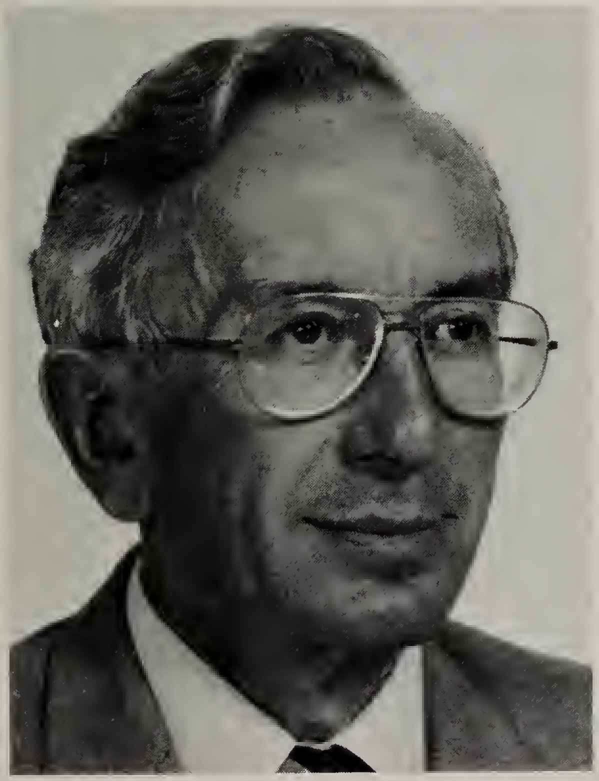
The Commerical Pesticides Firms and Operators Committee met 23 times to examine 80 applicants for pesticide operator's licences of whom 64 acquired their licences. Eight registered operators were also examined for additional chemicals to be added to their licence. Nineteen applications for registration of commercial pesticide firms were received, after inspection of equipment, vehicles, safety gear and, in some cases, the premises 15 were issued with registration.

Of the 17 applications for licences as a fumigator, 6 were issued with licences. One fumigation firm applied and was issued with registration.

Appendix XIV

STATE HEALTH LABORATORY SERVICES

V. Blackman
M.B.B.S., M.R.C.S.., L.R.C.P., F.R.C.Path., F.R.C.P.A., D.P.H., D.C.P.
Director
(until June 30, 1983)



J.J. Rippey
M.B.B.S., Ph.D.(Med.), F.R.C.P., F.R.C.Path.,F.R.C.P.A.,D.Path., D.P.H., D.T.M. & H.
Director
(from August 4, 1983)

SENIOR STAFF (FULL-TIME)

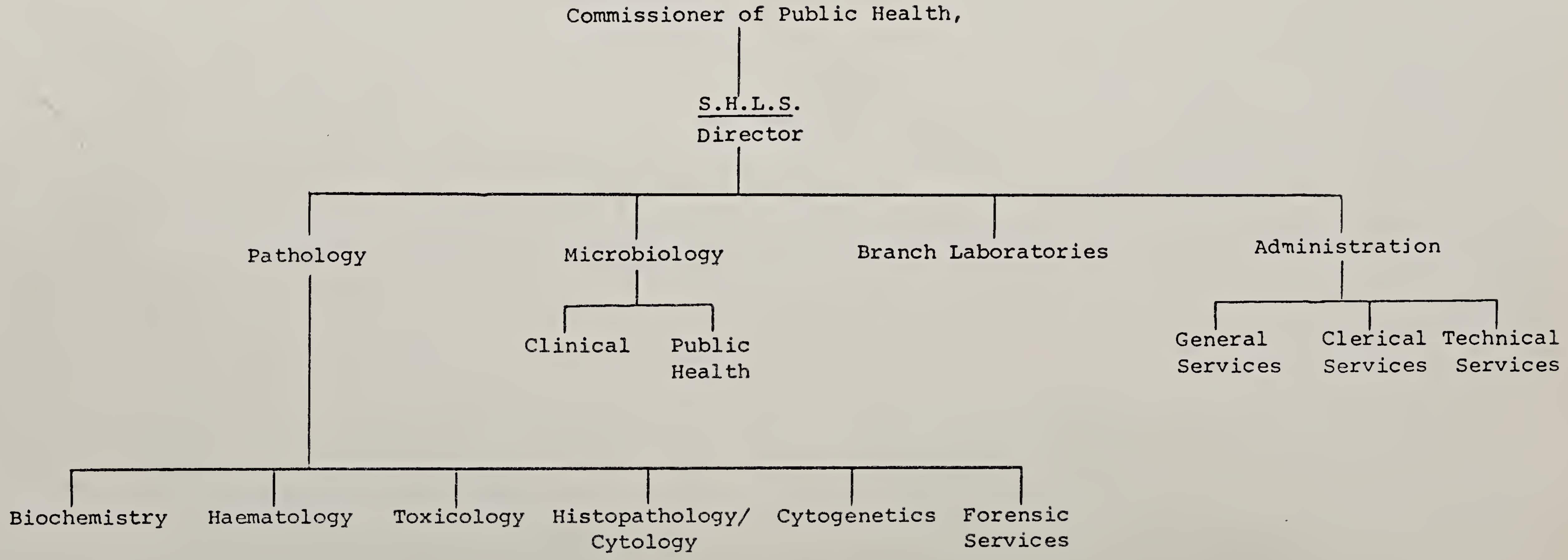
Director : Dr. V. Blackman
Principal Technologist : Mr. A.R. Fergie
Deputy Principal Technologist : Mr. G.S. Faulkner
Administrative Officer : Mr. L.A. Higgins
Clinical Pathologist : Dr. H.J Woodliff
Clinical Pathologist : Dr. A.J.N. Gaman
Clinical Pathologist : Dr. K.M. Mitchell
Immunologist : Dr. M.S. Stuckey
Pathologist, Cytogenetics : Dr. M.T. Mulcahy
Chief Microbiologist: Dr. A. Henderson
Medical Microbiologist: Dr. G.E. Rich
Microbiologist (Medical) : Dr. M. Bucens
Forensic Pathologist : Dr. D. Hainsworth
Forensic Pathologist : Dr. D.A. Pocock
Forensic Pathologist : Dr. J.M.N. Hilton
Pathologist Cytologist : Dr. J. Shapiro
Clinical Pathologist : Dr. K.E Williams
Clinical Pathologist : Dr. J.A. Pollard
Clinical Pathologist : Dr. V. Caruso

****

DIRECTORS AND HEADS OF COMBINED UNITS, NOT S.H.L.S. STAFF

Biochemistry : Professor D.H. Curnow
Toxicology : Professor J.W. Paterson
Haematology : Dr. D.W.G. Kennett
Histopathology/Cytology : Professor M.N.I. Walters
Microbiology : Professor N.F. Stanley
Immunology : Associate Professor R.L. Dawkins

STATE HEALTH LABORATORY SERVICES - ORGANIZATION CHART



STATE HEALTH LABORATORY SERVICES

1. INTRODUCTION

The major changes which took place in the laboratories in 1983 were concerned with accommodation and staffing. As far as accommodation is concerned the Central Laboratories now occupy what is destined to be their permanent home for many years to come. Work was completed on 'J' Block during the year at an overall cost of some $7.2 million (including equipment). The new building was officially opened by the Hon. Barry Hodge, M.L.A., Minister for Health on June 29, 1983 at a ceremony attended by Dr. J.C. McNulty, Commissioner of Public Health, Dr. V. Blackman, Director of State Health Laboratory Services, and distinguished guests from the Department of Hospital and allied Services, the Sir charles Gairdner Hospital and the University of Western Australia.

The move into the new quarters took place between July 16 and August 12, 1983. It involved a massive exercise in planning and logistics, with moves affecting virtually every unit in the State Health Laboratory Services and the Combined Laboratory Services. Alterations to some of the existing laboratories in 'K' Block were also necessary as a consequence of the move and these were almost completed by the end of the year. Thus the laboratories have been brought together and are now established in their new, spacious, specially designed quarters.

the Hon. B. Hodge, M.L.A., Minister for Health
opening 'J' Block on June 29, 1983

Dr. Victor Blackman, Director of the State Health Laboratory Services retired on June 30, 1983. Dr. Blackman had first come to work in the laboratories in 1966 and was appointed Director in 1975. During his time as Director he had experienced the introduction of Medibank and a tremendous increase in the number and scope of investigations performed. The laboratories had undergone marked and rapid expansion. New branches had been opened; the Combined Laboratory Services of the State Health Laboratories, the Sir Charles Gairdner Hospital and the University of Western Australia had come into being. During this period laboratories became increasingly sophisticated as automation proceeded apace and computerisation was introduced. He had the opportunity to see the results of much planning and the fruition of many years of his work when 'J' Block was opened officially the day before his retirement. Appropriately, at the opening ceremony, a presentation was made by the Commissioner of Public Health to Dr. Blackman to mark the occasion of his retirement and to acknowledge the sterling services he had given to the laboratories during his term of office as Director.

Dr. & Mrs. V. Blackman at the presentation to Dr. Blackman
on the occasion of his retirement as Director on June 29, 1983

Professor Neville Stanley, Foundation Professor of Microbiology in the University of Western Australia and Director of the Combined Microbiology Service retired at the end of the year.

Dr. John Rippey was appointed as the new Director on August 4, 1983. Dr. Rippey had come to the laboratories from South Africa where he had occupied a

Chair in Anatomical Pathology at the University of the Witwatersrand, Johannesburg. He was appointed as Deputy Director of the State Health Laboratory Services at the beginning of 1982.

There was an overall increase in the work of the laboratories of 7.4% when compared with the previous year, with a total of more than one million specimens being received by the laboratories. This was made up of a 8.2% increase in the work of the Central Laboratories and a 5.7% increase in the work of the Branch Laboratories. Virtually all areas of clinical pathology showed a similar growth in the volume of specimens examined in the Central Laboratories and this must be taken to reflect a general trend rather than any one specific change of circumstances. The increased work-load in the Branch Laboratories is in part due to the first full year's figures from the Kalgoorlie Laboratory being incorporated in the records. More tables and reports are now expressed in Canadian Work Units. These units are used throughout the Combined Laboratories and in all the teaching hospitals as part of a scheme of uniform functional reporting which has been introduced. Each unit represents one minute of time devoted to service work by scientific, technical, clerical or administrative staff.

Major equipment acquired by the laboratories during the year included a new electron microscope. This is housed in the electron microscope unit of the Combined Anatomical Pathology Services under the direction of Professor M.N.-I. Walters. Another major acquisition was the Technicon SMAC II Auto-Analyser system which is a highly sophisticated computerised piece of equipment which can perform up to 20 biochemical investigations on blood samples at a rate of 160 samples per hour. Although the initial cost of this machine was high, its capacity is such that each individual test performed costs only a few cents. The SMAC II has been installed in the Combined Clinical Biochemistry Service and is housed in the newly opened 'J' Block. A gas chromatograph mass spectrophotometer was purchased for the Combined Clinical Pharmacology and Toxicology Service.

Computerisation has also been extended considerably during the year. Clinical Microbiology and Clinical Haematology are now fully computerised on-line to the Cyber main frame computer. Other sections of the major divisions are due to go on-line shortly. Most Central Laboratories now have their own word processing facilities on micro computers. The installation of a telex staging computer in the new 'J' Block now allows the direct transmission of reports from word processors and computers in the various laboratories to the telex staging computer, CS 300. This computer collects, collates and stores reports. Then during the night it automatically telexes the reports through to their destinations in country or metropolitan non-teaching hospitals. The computer will also transmit reports through to terminals in the Sir Charles Gairdner Hospital.

There have been no major epidemic disease outbreaks during the year but considerable attention has been paid by the Microbiology Service to identifying and containing the spread of methicillin resistant Staphylococcus aureus (M.R.S.A.). This dangerous organism, the 'golden staph', is resistant to the majority of antibiotics and has caused severe outbreaks of hospital infection in the eastern states, but by virtue of timely public health measures, has been kept under control in Western Australia.

Restrictions on finance and replacement of staff have caused laboratory activities to be streamlined as much as possible and the Central Laboratories are now working at maximum efficiency all the time, but there are no reserves to fall back on. Any further cutbacks can only result in the laboratories having to attempt to reduce their work-load - for example, by closing down sections or units. In this respect it is of interest to see that no new staff position (save for those involved in the takeover of the Kalgoorlie Laboratories) have been granted since 1979. Since that time the number of specimens dealt with by the laboratories has increased by 24%.

2. ADMINISTRATION SERVICES

Finance

The net operating costs of the Laboratory Service are funded from Consolidated Revenue Fund. Other sources of finance include revenue derived from patient fees and services, Commonwealth revenue under General Revenue Grants, "Identifiable Health Grant" and rebates of expenditure from SCGH for shared costs of Combined Laboratory Services.

There were substantial cost increases incurred during the year for expendable supplies expenditure and additional commitments for the renovation of 'J' and 'K' Block accommodation.

Revenue collections for the period increased by $685,000. The additional collections were attributed to the full year of fee variations to the medical benefits schedule from November 1st, 1982. The Commonwealth fees schedule was not adjusted for CPI movements in November 1983 due to Wage Freeze Legislation.

Cost sharing arrangements with the SCGH were extended to all patient orientated combined units from 1st July, 1983. An amount of $448,900 was reimbursed from the hospital during the year.

Budget control and cost accounting procedures for expenditure were continued and enabled the effective analysis of budget performance of each laboratory. Substantial cost variations experience for the expendable supplies component of the budget caused some difficulties. The cost increases were greater than the inflation factor built into the budget.

Loan Funds were allocated for capital works expenditure on the completion of 'J' Block. The project cost to December, 1983 is $6,884,200.

Staff

Staff changes are shown below:-

Position	Recruited	Resigned	Retired
Director	1	-	1
Registrar	1	-	-
Clinical Pathologist	-	2	-
Medical Microbiologist	1	-	-
Technologist	11	3	-
Laboratory Assistant	23	25	1
Laboratory Attendant	4	1	2
Clerk	2	1	-
Typist	3	3	-
Clerk Typist	1	-	-
Data Processor Operator	1	-	-
Clerical Assistant	3	-	-
Cytotechnician	1	1	-
Senior Lab. Tech. Special	1	1	-
Technical Assistant	1	1	-
Animal House Attendant	-	1	-
Gardener	-	-	1
Pharmacologist	-	1	-
M.Sc. Student	-	1	-

Important changes of senior staff are as follows:-

Dr. V. Blackman	-	Director, retired from 30/6/83.
Dr. J.J. Rippey	-	Deputy Director, promoted to Director from 4/8/83.
Mr. L.A. Higgins	-	Administrative Officer, appointed from 4/8/83.
Dr. G. Cadden	-	Registrar, commenced from 1/7/83.
Dr. V. Caruso	-	Clinical Pathologist, resigned from 30/6/83
Dr. K. Mitchell	-	Clinical Pathologist, resigned from 25/11/83.
Mr. P. Payne	-	Administrative Officer, continued sick leave from 1st October 1982, and was detached pending retirement 4/1/84.
Dr. G. Rich	-	Clinical Microbiologist, commenced from 24/1/83.
Dr. R. Nation	-	Pharmacologist, resigned from 21/10/83.

Supply

The computerised inventory/supply system is functioning well in respect of inventory control and management information. Programme enhancements were made during the year to improve management information.

The stores committee continues to scrutinise the requisitions placed by the laboratories for direct purchases.

Specimen Reception and Billing

The specimen reception area receives specimens from Branch Laboratories, other Government and private agencies and referrals from metropolitan laboratories and teaching hospitals etc. These are identified by accession numbers. S.C.G.H. specimens go straight to the Combined Laboratory concerned.

Billing procedures for requests received by specimen reception remained unchanged for the year involving direct patient and bulk billing for services rendered. Bulk billing proved to be very cumbersome for claiming benefits from the Commonwealth. Each patient was required to assign benefits by completing an assignment form. Relevant details were omitted for approximately 30 per cent of assignment forms submitted by the requesting practitioner. The introduction of Medicare from February 1st, 1984 is expected to change the billing system.

During 1983 there were 397,606 request forms received by specimen reception, identified and distributed to the laboratories.

Requests from the Special Treatment Clinic (V.D. Laboratory) are not counted in this figure.

The work volume of requests generated some 437,597 chargeable items where patients were billed for services. Accounts were raised for the fees value of $5,908,058. Hospital service patient accounts represented 34,165 requests charged at a flat rate of $25 (from $20) per request per laboratory from 1st October 1982. The major non-chargeable requests are summarised as follows:-

1982 %		1983 %
14.8	Hospital Inpatient Pensioner/Disadvantaged	17.6
3.7	Public Health Work	3.5
3.3	Special Treatment Clinic	2.9
2.9	Viral Cultures	3.1
2.8	Institutionalised Children	2.7
1.7	Referred Other Laboratories	1.7
1.0	Alcohol & Drug Authority	1.3
0.8	Other mnemonic	0.9
0.8	Prisoners	1.1
1.7	Others (including Family Planning, Women's Health Care, Staff Screens, Mortuary cases etc.)	0.6

Computerisation

General

There was a considerable upheaval in June/July 1983 when the new laboratory extensions in 'J' Block were opened. This involved the relocation of computer facilities. Extensive rewiring was necessary for the installation of computer services into the 'J' Block basement and the Biochemistry computer moved to the 1st floor 'J' Block. These moves were accomplished with few problems and allowed some development to take place.

Projects

The following progress was made on the systems listed:-

(a) Biochemistry

This system has now been functioning for 10 years. A decision was made early in 1983, that it was no longer feasible to extend the system further, and that provision should be made for its replacement by more modern equipment. The existing computer does not have the capacity to cope with expected extensions in the areas, and is needing extensive updating to remain operational.

The Biochemistry system continued to telex results to Branch Laboratories. The installation of the SMAC II Biochemistry analyser involved considerable effort in programming and development before the machine became operational.

(b) Clinical Bacteriology

This system continues to function well. There have been progressive enhancements to meet changing needs.

(c) Histopathology Reporting

This system has continued to function. There will be further developments with the introduction of the Pathology Data Base System.

(d) Histopathology Data Base

This system was designed and programmed during the year. Extra hardware was budgeted, including terminals and a hard disc drive for the SHLS Histopathology ECS4500 network.

(e) Immunology

A link with the Immunology Departments at the Royal Perth and Sir Charles Gairdner Hospital, is planned. Systems design is well advanced. Hardware evaluation has been finalized to enable the installation of the necessary equipment for this link during 1984.

(f) Haematology

The Haematology Laboratory System Phase 1 was implemented on 16/11/83 and has now settled down. There will be minor enhancements required. External specifications are now being drawn up for Phase II (Blood Bank).

(g) Mycobacteria

This system became live on 8/8/83 and is functioning well.

(h) Serology

System Requirement Definitions were completed. Internal specifications are now being developed. Implementation is scheduled for late 1984.

(i) Pathology Billing

There were continuous changes to the programme throughout 1983. Provisional plans were made for the introduction of Medicare.

(j) Patient Request Registration

A survey was carried out on the requirements for this system, with a view to changes being made once the requirements for Medicare were clear.

(k) Inventory Supply

Minor enhancements were made. There were delays with some of the financial reports due to errors in the programme. An extra terminal was provided at the Central Stores in Leederville.

(l) Branch Laboratories

Considerable investigation and planning was carried out, with a full analysis and the preparation of System Requirement Definition. Approval was given for the development of the system at the Osborne Park Branch Laboratory. Funds for the hardware necessary were provided.

(m) Report Telexing

The CS3 system was installed in July 1983, however there were a number of programme problems which required considerable redevelopment. The system became functional in late November 1983 and is operating at a satisfactory level.

(n) Cytogenetics

Funds were provided for a dedicated Cytogenetics microcomputer, sufficient to service the register of genetic abnormalities detected so far.

(o) Forensic Pathology

Funds were provided for a word processor/microcomputer in Forensic Pathology, to speed up the production of legal standard reports, and to give ready access to past forensic material.

(p) Media and Sterile Outfits

A feasibility study was carried out on the amalgamation of the Reagent Preparation, Media and Sterile outfits with the Stores/Supply System. It was found that this was not an economical project. It was recommended that a dedicated microcomputer could fulfil the requirements of these areas quite adequately.

Transport and Communication

The approved vehicular fleet and criteria for replacement have remained unchanged. Government initiatives have been taken to record vehicle utilization and fuel consumption. Pool fleet usage has also been maximised.

Telex reporting to metropolitan laboratories has not been implemented fully and courier services are used for deliveries and referrals from Bentley, Swan Districts and Osborne Park. After-hours services have been maintained for Airport throughput.

An investigation was conducted into courier services for reporting and specimen collection to metropolitan branch laboratories and practitioner services, and changes were implemented to optimise courier resources.

3. TECHNICAL SERVICES

Instrumentation

Repairs completed:

Workshop	700
On-site	530
	1230

Safety and maintenance checks were performed in every section of the laboratory service. The checks were for both electrical and mechanical safety as well as preventative maintenance routine.

The Instrumentation Store was moved from the second floor of 'K' Block and relocated in the basement of 'K' Block.

A storage oscilloscope was purchased for the electronics workshop. The acquisition of this test equipment, coupled with the training course attended by the Senior Instrument Technician has given the section the ability to repair some of the high technology equipment used in the laboratories.

The programme of upgrading test equipment and the associated staff re-training has continued. This programme has lessened the reliance of the laboratories on expensive maintenance contracts.

Media

	1983	1982	% Change
Plates poured	1,466,584	1,366,444	+7.3%
Tubes and bottles	1,532,476	1,429,678	+7.2%
Volume (litres)	47,127	45,208	+4.2%

Production of media has increased by 7.0% over the 1982 figures.

A fully automated plate pouring machine, capable of filling 1200 Petri dishes per hour was installed in the section. A 50 litre media sterilizer was installed to allow the new plate pourer to run at full capacity. The complete system was operating successfully soon after all deliveries were complete.

Delays in the replacement of staff have caused problems in production. This was especially so in the mid-summer months when production was at its highest.

Reagent Preparation

Production volume:

Manual reagents	2,973 litres
Automation reagents	3,048 litres

The total production in reagent volume remained steady. Manual reagent volumes increased while automation reagents decreased during the year.

Staff numbers remained steady.

Animal House

This section continued to operate well with a now experienced staff. With the award of a Diploma in Animal Technology to Mr. D. Brandis, all members of the staff are now qualified in Animal Technology.

The work-load showed no significant variation.

Conferences

Mr. P. McCartney : Attended the Seventh National Scientific Meeting, Australian Society for Zoo and Laboratory Animal Science - Murdoch University, Perth, W.A. August 24-26th 1983.

Courses

Mr. P. Edwards : Attended a training course on the maintenance and servicing of laboratory analysers and tissue processors. Dee Why, New South Wales 28th February - 11th March 1983.

Awards

Mr. N. Sivewright : Awarded the degree of Master of Business from the Western Australian Institute of Technology.
Thesis entitled : "Productivity Analysis as a means of Controlling Costs in the Microbiological Culture Media Industry in Australia".

Mr. D. Brandis : Awarded the Diploma in Animal Technology by the Australian Animal Technicians Association.

4. MISCELLANEOUS

Library

The main emphasis on the library service this year has been to improve journal circulation. The introduction of an automatic service from the main library at Curtin House has resulted in an improved and more rapid system of journal circulation. However the quantity of journals that are circulated to the State Health Laboratory Service has meant that it has become increasingly difficult to maintain circulation to individuals. A new system of journal circulation is to be introduced at the beginning of 1984. Core journals will be circulated to departments for a maximum period of two weeks; all journals will be displayed in the library for two weeks which will complement the core journal selection. It is hoped that this system will alleviate the problems faced by the staff here and will, in turn, provide a faster service to country staff.

The restrictions of the Copyright Act have continued to affect the number of photocopies supplied, and this is a general problem affecting most libraries.

The demand for information is increasing, especially requests for computer searches. It is hoped that a computer terminal will be available in the library during 1984.

In August the librarian attended the Australian Medical Librarians' Conference held in Perth.

This library, and in turn its clientele, relies heavily on the staff from the main library and their efforts are always appreciated.

Library statistics are as follows:

	1983	1982
Reference queries	659	894
Computer searches	56	24
Book loans -		
S.H.L.S.	328	423
Inter-library loans	42	148
Total :	370	571
Photocopies -		
S.H.L.S.	2262	2200
Inter-library loans	234	434
Total :	2496	2634
New books	68	82
Books on order	71	83
New journals	5	7
Journals on order	1	3

Quality Control

Internal and external quality controls have been maintained in the Central Laboratories and in the Branch Laboratories throughout the year in all areas.

Quality control materials are obtained from both commercial sources and from the Royal College of Pathologists of Australasia. Internal quality control materials are prepared by specialist laboratories with the aid of the Reagent Preparation section.

Fire and Safety

Temporary accommodation and relocation of several laboratories during the current year have introduced problems with safety co-ordination. The stabilisation of work area allocation and commissioning of building alarm systems will restore uniformity in warning for evacuation procedures.

The year has passed without serious safety or injury incident which is most satisfactory considering the staff numbers involved.

In-Service Training

Organised staff training programmes were not implemented due to spasmodic, rare staff appointments.

Proficiency has been maintained by 'on-the-job' instruction for junior staff and regular gatherings of regional technologists from the Branch Service. This has had a twofold value with Central Laboratory staff benefiting from problems experienced by employees in the periphery.

Pathnote Committee

In 1983 seven Pathnotes were submitted for publication:

Biochemistry	2
Haematology	3
Microbiology	1
Toxicology	1

Pathnotes are still widely distributed both within and without the Service. Their distribution within the Service is responsible for the standard methodologies used throughout the Branch Laboratory Service. During 1984 a review of Pathnotes of all categories will be undertaken.

5. BRANCH LABORATORY SERVICES

Work-load

The total number of tests performed in Branch Laboratories during 1983 was 298,135 compared with a total of 282,136 for the previous year, an increase of 5.7%.

Accommodation

New laboratory accommodation at Swan Districts, commenced in 1982 was completed during the year as were additions to the Osborne Park Laboratory. The latter work was to enable Histopathology to be performed on site.

The new laboratory at Kalgoorlie was finished during 1983 and occupation took place in early December.

Work was commenced on new premises for Port Hedland and completion of this facility is expected early in 1984.

Equipment

Upgrading of current equipment continued with the purchase of more programmable calculators for use with the "Gilford" Spectrophotometers and also more "Hycel" haematology analyzers.

The major development was the introduction of four RA 1000 Biochemical Analyzers. These instruments replaced the ABA 200 analyzers and have proved very successful. Unfortunately, finance did not allow for a complete replacement programme and the Port Hedland ABA 200 was replaced with an ABA 100 from Biochemistry. This instrument is proving adequate for that Laboratory's needs.

Staff

As usual there were numerous staff changes, particularly within the laboratory assistant workforce.

The only major changes to staff deployment were the stationing of an extra technologist at Manjimup and the non-replacement of one laboratory assistant at Nickol Bay. It is hoped that this latter development is of a temporary nature only.

Developments

The Great Southern Region underwent some changes during 1983. The Regional Centre was transferred from Narrogin to Albany and the Merredin Laboratory was reallocated to the Goldfields region. Concurrently with this latter change, Northam was included in the Great Southern Region.

1983 saw the first meeting of regional technologists. This proved to be of immense value and such meetings will in future be held twice a year.

6. COMBINED MICROBIOLOGY SERVICES

Papers Published

Bucens, M.	:	Electron microscopy and herpesvirus. Letter to editor. Med. J. Aust. 1983, 2:480
Bucens, M.R., Pietroboni, G.R. and Harnett, G.B.	:	False Positive Results Occurring in a Radioimmunoassay for hepatitis A IgM Antibody to the IgM class. Journal of Virological Methods Vol. 7 p287-295, 1983.
Carroll, S.M., Bowman, R.A. and Riley, T.V.	:	A selective broth for Clostridium. difficile. Pathology 1983, 15:165-7.
Dunn, B.L. and Rippey, J.J.	:	Leprosy Surveillance - Western Australia (1982.) Communicable Diseases Intelligence May 1983.
Hodgen, A.N.	:	Immunodiagnostic Techniques Associated with Human Parasitic Disease. Report to the National Health & Medical Research Council - Public Health Travelling Fellowship 1982.
Iveson, J.B.	:	Salmonella surveillance in Western Australia April to June quarter 1983. Communicable Diseases Intelligence Bulletin 82/23, Issue date 18 November 1983.
	:	Public Health and Enteric Diseases Reports January to March 1983, April to June 1983 and July to September 1983. Issue dates December 1983.

Iveson, J.B. : Regional aspects of Salmonella in Western Australia. WA Health Surv. Jour. Vol. 5, No. 3, 5-21.

Iveson, J.B. and Curtis, R.B. : Public and Environmental Health on Rottnest Island. W.A. Health Surv. Jour. Vol. 5, No. 3, 11-21.

Iveson, J.B. and Hart, R.P. : Salmonella on Rottnest Island: implications for public health and wildlife management. Journal of the Royal Society Western Australia, vol. 66, 15-20.

Iveson, J.B., How, R.A., Bradley, A.J., Kemper, C.M., Kitchener, D.J. and Humphreys, W.F. : The natural history of Salmonellae in mammals of the tropical Kimberley region, Western Australia. Ecology of Disease Vol. 2, No. 1 p9-32 (authorship order randomized).

Kibenge, F.S.B., Wilcox, G.E. and Perret D. : Staphylococcus aurens isolated from poultry in Australia. Phage-typing and cultural characteristics Vet. Micro. 7 (1982) 471-483.

McAleer, R. : Black Shell Disease of the Western Rock Lobster caused by Fusarium solari. Proceedings from the VIIIth Congress of the International Society of Human and Animal Mycology.

Moulsdale, M.T., Harper J.M., Thatcher, G.N. and Dunn, B.L. : Infection by Mycobacterium haemophilum, a metabolically fastidious acid-fast bacillus. Tubercle 64 (1983) 29-36.

Ojeda, V., Archer, M. Robertson, T.A. and Bucens, M.R. : Necropsy study of the olfactory portal of entry in Herpes simplex encephalitis. Med. J. Aust. 1983, 1:79-81.

Phillips, P.A., Kuberski, T. and Tompkins W. Tabua : Isolation of Haemophilus ducreyi from a chancroid in Papua New Guinea. Med. J. Aust. 1983, 166-169.

Riley, T.V., Bowman, R.A. and Carroll, S.M. : Diarrhoea associated with Clostridium difficile in a hospital population. Med. J. Aust. 1983, 166-169.

Riley, T.V. and Mee, B.J. : Susceptibility of Bacteroides spp. to heavy metals. Ant. Microbiol. Agents and Chemotherapy. 1982, 22:889-892.

Ruhen, R.W. and Wetherall, F.M.: Colonial variation in Serratia marcescens together with antibiotic resistance.
Pathology 1983, 15:65-66.

Conferences, Lectures and Tours

During the year the following national and international meetings were supported:

The A.N.Z.A.A.S. Congress in Perth, May 1983
Dr. Bucens, Mr. Iveson, Dr. Stuckey.

Human Genetics Society of Australia, Perth, May 1983
Dr. Stuckey.

The annual meeting of the Australian Society for Microbiology, May 1983
Dr. Rich (President), Mr. Ismail, Mr. Riley.

The annual meeting of the Australasian Society for Infectious Diseases, Melbourne, March 1983
Dr. Bucens, Dr. Henderson.

Conference of Australian Water and Waste Water Association, Sydney, April 1983
Mr. Jansons.

Fourth Australian Food Microbiology Conference, Sydney, October 1983
Mr. Last.

International Congress of Immunology, Japan, August 1983
Dr. Stuckey.

Meeting of the European Group for Rapid Viral Diagnosis, Turku, Finland, September 1983
Dr. Bucens.

Members of the Combined Microbiology Service participated in clinico-pathological presentations locally and lectured to undergraduate and post-graduate medical students of the University of Western Australia and students of microbiology at W.A.I.T.

CLINICAL MICROBIOLOGY (TABLE II B)

Blood Cultures

Number received : 2,899
Number contaminated : 141 = 5%
Number from which significant organisms were isolated : 190 = 7%

Predominant organisms isolated (96%)

1.	Escherichia coli	60	=	32%
2.	Klebsiella pneumoniae	13	=	7%
3.	Pseudomonas aeruginosa	8	=	4%
4.	Staphylococcus aureus	44	=	23%
5.	Staphylococcus epidermidis	25	=	13%
6.	Streptococcus faecalis	25	=	13%
7.	Streptococcus pneumoniae	8	=	4%

Cerebro Spinal Fluid

Number received : 745
Number infected : 2

Organisms isolated

1. Crytococcus neoformans
2. Neisseria meningitidis

Parasites Identified from Faeces Specimens

Ancylostoma duodenale	3
Endolimax nana	5
Entamoeba coli	7
Entamoeba histolytica	2
Enterobius vermicularis	1
Giardia lamblia	17
Strongyloides stercoralis	2
Trichuris trichiura	3

Wound Swabs

Number received : 4,897
Number from which significant organisms were isolated : 2,720 = 56%

Predominant organisms isolated (72%)

Escherichia coli	124	=	5%
Klebsiella species	70	=	3%
Proteus species	116	=	4%
Pseudomonas aeruginosa	180	=	7%
Staphylococcus aureus	1,366	=	50%
Streptococcus pyogenes	92	=	3%

Interesting Infections

During the year there were 54 isolates of Neisseria gonorrhoea, five of which produced beta-lactamase.

Clostridium difficile toxin was detected in 48 specimens of faeces.

One isolate from blood culture proved to be Pseudomonas pseudomallei. The patient from Derby was a diabetic and died ten days after chemotherapy commenced.

Corynebacterium diphtheriae was isolated from blood cultures taken from a patient admitted for treatment of infective endocarditis. Salmonella typhi was isolated from the urine and blood, but not faeces of a patient with cancer of the bladder.

INFECTION CONTROL SECTION (TABLE II B)

Methicillin Resistant Staphylococcus Aureus (M.R.S.A.)

New cases of MRSA were reported from the following centres:

Darwin Hospital	252
Royal Perth Hospital	30
Repatriation General Hospital (Hollywood)	45
Sir Charles Gairdner Hospital	7
Princess Margaret Hospital	5
Fremantle Hospital	1
State Health Laboratory Services	20

In 1983, 2,310 sets of swabs were taken or submitted to this laboratory for MRSA screening of patients, staff and contacts.

	Q.E. II Medical Centre	State Health
Sets of swabs	1,031	1,279
Number positive	80	15
Patients/staff involved	7	8

During the year, the amount of mass screening of institutions and hospital wards reduced, while there was an increase in the number of staff and patients from out-of-state being screened. This indicates a better understanding of the problem and awareness of screening policies.

Gentamicin-resistant Klebsiella

No isolates were reported.

Institutions visited/screened

1. Screening for MRSA : Gwenfred Nursing Home, Carlisle Nursing Home, Craigwood Hospital, Cambridge Hospital, Hillroyd Nursing Home, Home of Peace (Subiaco), Hamilton Hill Nursing Home, Mt. Henry Hospital, Rowethorpe Nursing Home. No MRSA was found.

2. Air sampling was undertaken at the Media and Reagents Section, Victoria Park to determine the extent of air-borne contamination. Levels were significantly high.

3. Sunset Hospital (June). Two patients on the same ward had the same phage type of Staphylococcus aureus. Some staff and patients were screened, but there was no evidence of a problem.

4. Alfred Carson Hospital - Silver Chain (September).
   Matron was concerned over several cases of Pseudomonas infections which had occurred within a short time. Solutions and dressings were sampled. Pseudomonas was not isolated; however Serratia marcescens was isolated from two samples of eyedrops and recommendations were made to avoid contamination in the future.

5. Mental Health Services Laundry. At the request of the laundry management at Swanbourne Hospital, the laundry and on-premises laundries at several hospitals were visited and sampled. Quarterly surveillance of the main laundry was instituted.

Points of Interest

1. The incinerator plant at the Q.E. II Medical Centre was screened over the two week period in January to detect any pathogens in waste water. None were found.

2. Weekly surveillance of the renovated kitchens (Q.E. II Medical Centre) was undertaken in March - April 1983. No pathogens were isolated.

3. Waste rags (March - April). At the request of a health surveyor, samples of laundered and unlaundered industrial waste rags were tested. There was little difference overall.

4. Water-filled toys (May - July). Three sets were examined - one filled with Taiwanese drinking water, the second with local scheme water, the third was unknown. Bacterial counts on the first two samples were high, in particular the samples imported already filled. The third batch had very low counts.

5. Therapeutic Goods Act Test for disinfectants. Seven out of eight samples submitted for testing failed. Another brand of disinfectant was substituted on the tender. Of a further two samples tested, one passed.

6. At the request of Dr. Southgate, the efficacy of Quaternary Ammonium Compounds (QAC's) was tested to determine whether they could replace phenolics in general hospital disinfection. Two samples of QAC's and two samples of phenolics were compared. It was found that the phenolics were superior to the QAC's in simulated in-use tests.

Accommodation

In November, the Lyophilisation equipment, collection, and one laboratory assistant were moved from the First Floor 'L' Block to the basement of 'K' Block.

Conferences Attended

Mr. Ruhen, Sister Graham, Miss Worsley, Mrs. Briggs: 4th Annual Seminar, Infection Control Nurses Association, Fremantle Hospital, August 19, 1983.

Miss Worsley: Address to Textile Rental and Laundry Association on Microbes and hazards related to their industry, August 24, 1983.

PHAGE TYPING/QUALITY CONTROL SECTION (TABLE II A)

Staphylococcus aureus Phage Typing

A total of 5,186 cultures was typed.

Phage type 71

Twenty two strains were isolated mostly from skin and wound infections. Two cases, each of scalded skin syndrome, impetigo and leg ulcer were associated with this organism.

Phage type 80/81

Nineteen strains were isolated; 8 of these were from babies born at the one hospital, 6 were from nursery staff and 1 was from an adult patient at the same hospital.

Phage typing was carried out to characterise methicillin-resistant strains of Staphylococcus aureus.

Quality Control

A quality control service was maintained by this division which produced specimens and organisms to be examined and identified by 31 participating laboratories.

MYCOBACTERIUM SECTION (TABLE II C)

A total of 6,820 specimens was received for examination during 1983. This represents 360,291 Canadian Work Units. Included are cultures referred for identification and drug sensitivity testing, homogenates received for guinea pig inoculation, slides for the microscopic examination for M. leprae and biopsies for dapsone resistance testing of M. leprae.

At the end of 1983 the Mycobacteria Laboratory commenced microscopy and culture work for Legionella. A total of 27 specimens was received for Legionella examination.

There were 662 isolates of mycobacteria identified during 1983 from human, animal and quality control sources. This is an increase of 8.2% from 1982 wherein there were 612 isolations. The species isolated from these sources are summarised in the table.

M. tuberculosis was isolated from 54 new patients during 1983. There were 44 laboratory reported cases of pulmonary tuberculosis and 10 laboratory reported cases of non-pulmonary tuberculosis, namely genitourinary - 1 case; lymph node - 4 cases; thigh wound - 1 case; groin abscess - 1 case; tuberculous meningitis - 2 cases; and miliary tuberculosis - 1 case.

Interesting Cases

B.C.G. was identified from swabs taken from B.C.G. vaccination sites from an 18 month old girl, an 8 year old boy, a 15 year old boy and an 18 year old girl.

M. avium serotype 3 was isolated from a preauricular node of an 18 month old boy. The culture was submitted by Princess Margaret Hospital.

M. intracellulare was isolated from 91 new patients during 1983. Of these, 76 strains were nontypable. Twelve patients excreted typable strains of M. intracellulare from sputum, namely serotypes 7 and 12 (1 patient), 12 (1 patient), 14 (5 patients), 16 (1 patient), 19 (2 patients), 25 (1 patient) and 42 (1 patient).

In addition, M. intracellulare serotype 9 was isolated from a liver biopsy of a 37 year old woman. M. intracellulare serotype 14 was isolated from a cervical lymph node of a 2 year old girl, and M. intracellulare serotype 18 was isolated from the occipital gland of a 2 year old girl. The last two isolates were submitted by Princess Margaret Hospital.

There were 4 patients from whom mixed cultures of M. intracellulare and M. kansasii were isolated; 2 males aged 49 and 77 years and 2 females aged 69 and 87 years. The organisms were isolated from urine, pleural fluid, gastric aspirate and sputum respectively.

M. marinum was isolated from tissue from the palm of the hand of a 67 year old woman.

During 1983, a total of 575 Split Skin Smears (162 slides) from 119 patients were examined for M. leprae using a modified Ziehl-Neelsen stain. Of these patients, 14 had smears positive for M. leprae and 6 of the patients were new cases. Four of the new patients were males, ages 17, 20, 22 and 55, all from Derby. The other 2 patients were females, ages 26 and 68 years. The first woman was from Derby and the second woman was living in Perth, but had a history of living in India for some time.

In addition to Split Skin Smear examination for M. leprae, 6 biopsies were received for dapsone resistance testing of M. leprae using the mouse foot-pad inoculation technique.

A total of 156 drug sensitivity tests were performed on human isolates during the year. All isolates were tested against streptomycin, isoniazid, ethambutol and rifampicin. In addition to these drugs, 39 isolates were also tested against para-amino-salicylic acid, prothionamide, cycloserine, thiacetazone, capreomycin and kanamycin. Of the 54 stains of M. tuberculosis tested, 2 strains showed primary drug resistance to streptomycin.

New Developments and Equipment

A new development in the Mycobacterium Section has been the commencement of microscopy and culture for Legionella species. The microscopy involves an indirect fluorescent antibody technique whilst culture is performed using a Charcoal Yeast Extract Agar Medium. So far very few specimens have been examined and as yet no positive specimens detected. However, it is anticipated that the request for Legionella microscopy, culture and sensitivity testing will increase in 1984.

The Mycobacteria Computer System was successfully introduced on 1 August 1983 and was designed to handle the major portion of work of the laboratory.

MYCOBACTERIA ISOLATIONS FROM HUMAN SOURCES 1983
(Including Referred Cultures)

599 Isolations.

Species	No. of Isolations
M. tuberculosis	191
B.C.G.	4
Group I	
M. kansasii	23
M. marinum	1
Group II	
M. scrofulaceum	1
M. gordonae	10
M. flavescens	1
Group III	
M. avium	1
M. intracellulare	347
M. terrae	3
M.A.I.S. complex	2
Group IV	
M. fortuitum	7
M. chelonae subsp. abscessus	3
M. chelonae subsp. chelonae	2
Unidentified Group IV	1
Unidentifiable	2
TOTAL	599

Quality Control

M. chelonae subsp. chelonae	1
TOTAL	1

MYCOBACTERIA ISOLATIONS FROM ALL SOURCES 1983

Human	599
Animal	62
Quality Control	1
	662

MYCOLOGY SECTION (TABLE II D)

There was an increase in specimen numbers in 1983; the percentage of these yielding positive results remained steady at slightly over one third.

No staff changes were made during 1983.

Superficial Mycoses

Pityriasis versicolor continues to be prevalent in Western Australia; 256 cases were diagnosed by the laboratory this year. There were 82 cases of erythrasma, 24 of superficial white onychomycosis, 12 of trichomycosis axillaris and 2 of white piedra.

Cutaneous Mycoses

Of these, dermatomycoses continue to be the most prevalent of the skin infections seen by the laboratory. Approximately 1400 dermatophytes were isolated from different tinea types in 1983. Trichophyton rubrum was again the most frequent species isolated, but this year Epidermophyton floccosum was the second most common species. There were greater numbers of isolates of all the more common species this year. Trichophyton verrucosum is of rare occurrence in Western Australia; the 2 cases recorded this year were in people who had contact with farm animals, their lesions occurring on exposed parts of the body. One human case of Microsporum nanum infection was recorded in a pig farmer; this organism was also isolated from his pigs.

An unusual isolate was Microsporum gypseum from a toe nail. This fungus is isolated fairly regularly by the laboratory, but it is most unusual to recover it from a nail infection.

Yeasts are also frequent causes of skin infections and 392 specimens yielded a yeast as the pathogen. The most common yeast was Candida albicans, isolated from 250 specimens.

Ear Swabs

Thirty one ear swabs were received for processing this year; 25 of these yielded a fungal pathogen, the most common isolate being Aspergillus niger.

Vaginal, Cervical Swabs

From all genital specimens received this year 3,282 grew some type of fungus. By far the most common and important species causing infection of this area is Candida albicans.

Throat, Mouth and Oesophagus

The most frequent organism recovered from these infections is Candida albicans, a commensal in the mouth which only becomes pathogenic when the balance is upset in some way. It was recovered from 52 specimens.

Subcutaneous Mycoses

A 31 year old woman with symptoms of nasal obstruction and opaque sinuses on X-ray whose condition was found to be caused by Drechslera spicifera. The fungus was grown from currettings and seen histologically, the patient had strong antibody reaction to Drechslera.
A 56 year old man with chromomycosis on the heel was seen; this was caused by Exophila jeanselmei.
Two cases of subcutaneous nocardiosis were due to Nocardia; 1 a long standing case of madura foot due to N. madurae and the other subcutaneous abscesses caused by N. brasiliensis.
Fusarium was isolated from an ulcer on a 33 year old woman and Scopulariopsis from the toe of a 27 year old man. Petriellidium boydii was identified from a scleral ulcer graft.
A subcutaneous lesion due to Aspergillus fumigatus in a 52 year old immunosuppressed patient who previously had nocardiosis was found.

Systemic Mycoses

Most systemic mycoses recorded in Western Australia are opportunistic infections and the organisms causing them are usually common air-borne fungi frequently found in the environment. It is important to examine a series of specimens to determine the significance of any fungus isolated and also to examine the patients serum for antibodies to the fungus concerned. For this reason the fungal serology laboratory has developed reagents to test for a range of opportunistic fungi; this is proving to be a valuable diagnostic aid and a vital back-up for the cultural work.

Actinomycosis

Actinomyces israelii was isolated from the ectocervical swab and/or intrauterine devices of 7 patients and actinomycotic filaments were detected in smears from these 2 sites of 13 other patients. In most cases the intrauterine device had been in situ for over 2 years.

Allergic Bronchopulmonary Disease due to Dematiaceous Hyphomycetes

Curvulvaria and Drechslera antibodies were found in the blood of a 26 year old woman with unresolved pneumonia who lived in the north of the state. A 30 year old man from the north of the state who had previously suffered from allergic bronchopulmonary disease due to Drechslera hawaiiensis had a recurrence of the disease this winter.

Aspergillosis

There were 22 cases of confirmed pulmonary aspergillosis: 1 due to A. flavus, 15 to A. fumigatus, 1 to A. nidulans, 4 to A. niger and 3 to A. terreus. Two of these were mixed infections.

There were 17 patients with probable allergic bronchopulmonary aspergillosis; 4 due to A. flavus, 7 to A. fumigatus, 3 to A. niger and 2 to A. terreus.

Candidosis

Six cases of systemic candidosis, with protein antibodies to C. albicans in the serum, were identified.

A 67 year old man with a chronic recurrent sinus on his thumb, 'Wool sinus', had C. albicans isolated from a biopsy specimen.

Currettings and biopsy from a 53 year old man with osteomyelitis and radio necrosis of the right mandible grew C. krusei.

Oesophageal candidosis caused by C. albicans was recorded in 7 patients.

Two patients had C. albicans in their bronchial washings. The tongue swab of a patient on steroids grew C. albicans.

C. albicans was isolated from the throat of a 19 year old man with lymphomatoid granulocytosis.

Oral candidosis due to C. albicans was recorded in 7 patients at least 2 of whom were immunosuppressed.

Cryptococcus

A fatal case of cryptococcal meningitis due to Cryptococcus neoformans var. neoformans, serotype A, was recorded in a 42 year old man who had contracted his infection after a swallow's nest fell onto his face from above a doorway. The same serotype A of Cryptococcus was isolated from the patient and the swallow's nest.

Farmers Lung

Micropolyspora faeni antibodies were found in 2 patients with possible farmers lung; a 77 year old man with fibrosing alveolitis and a 75 year old man with slowly resolving pneumonia.

Antibodies to M. faeni and Thermoactinomyces vulgaris were found in 2 patients with extrinsic alveolitis. Another patient from the south west of the state who had contact with mouldy hay, had antibodies to M. faeni only.

Histoplasmosis

Precipitins to H. capsulatum were found in 4 patients, 2 from the United States of America, 1 Asian who had travelled widely and 1 from the United Kingdom who had visited South East Asia.

Nocardiosis

This disease was diagnosed more frequently this year than in any previous year. Seven patients had infections due to N. asteroides.

Animal Specimens

Aspergillus spp and Candida albicans were isolated from poultry.

The heart and liver of 1 dog grew A. terreus and this fungus was isolated from the urine of another canine at autopsy. A dog had a granulomatous mass on the medical aspect of the foreleg to a phycomycete, Mucor.

Sporotrichosis was recorded in a horse. The fungus Sporothrix schenckii was grown from multiple abscesses on the shoulder of a horse and serum from the animal had a titre 1:8.

Cryptococcus neoformans was isolated from the wound swab of a cat.

Aspergillus terreus was isolated from the lung of a seal.

Dermatophytes isolated from animals included M. nanum from 3 pigs and Trichophyton equinum var. equinum from 2 horses.

PUBLIC HEALTH AND ENTERIC DISEASES UNIT (TABLE II E)

A total of 81,319 specimens was examined by the four sections comprising the Public Health and Enteric Diseases Unit, compared with 80,864 specimens in 1982. A total of 8,695 samples were positive for pathogenic organisms and of these 3,260 were derived from patients with enteric infections.

The Clinical Enteric and Parasitology Sections showed little change in specimen totals, but increased both the work-load and ratio of pathogens identified by expanding routine test procedures to include the isolation of Aeromonas hydrophila and Clostridium difficile.

Screening of foodhandlers, immigrants and follow-up studies of case carriers remained an important function of the Clinical Section; no major food or waterborne outbreaks of infection were diagnosed during 1983. A small outbreak of Salmonella agona infection involving 15 persons occurred during the last quarter of the year. S. agona is a major international pathogen and the source of infection and mode of entry into Western Australia, although not proven, is most likely an imported foodstuff or ingredient.

Reporting of Salmonella, Shigella and Campylobacter cases on a statewide collaborative basis from all diagnostic laboratories involved the preparation and forwarding of 1,238 computer cards to the Australian Department of Health National Reporting Centre. Computer information on a total of 2,906 Salmonella isolations from foods, animal and environmental sources was also forwarded to the National Centre and a quarterly Public Health and Enteric Diseases Unit Report was published.

Regular surveillance and preventative measures undertaken by control authorities resulted in further increases in the number of specimens examined by the Food Hygiene and Water testing sections.

The Food Hygiene Section undertook testing of samples derived from regular monitoring of the smallgoods, poultry and catering industry, as well as foodstuffs imported interstate and from overseas.

Regular surveillance of drinking and recreational waters resulted in a further increase in samples tested by the Waters Laboratory, with a marked summer peak in control measures against free living amoebae.

The important environmental sentinel role of this laboratory section was further highlighted by the detection during routine monitoring of widespread S. agona contamination in sewerage effluents and sludge by-product, a finding which alerted health authorities to an outbreak of infection in the community and subsequently, as a result of intensified monitoring by the food laboratory, which led to the isolation of S. agona from an imported food item.

CLINICAL ENTERIC SECTION

A total of 540 Salmonella cases was recorded in Western Australia during 1983 compared with 518 cases in the previous year. Case totals increased slightly in comparison with the downward trend observed in recent years. Annual case totals since 1977 are summarised in the following table.

Year	Salmonella Case Totals	
1977	1,036	S. chester outbreak source not proven
1978	993	No major outbreak
1979	1,701	S. muenchen outbreak traced to raw chicken
1980	936	No major outbreak
1981	819	S. senftenberg outbreak traced to smallgoods
1982	518	No major outbreak
1983	540	S. agona outbreak source not proven

A total of 69 serotypes was implicated in human infections including S. mount-magnet, a new strain isolated from a child with symptoms of enteritis. The most common serotypes were S. typhimurium (112 cases), S. muenchen (41), S. chester (43), S. saint-paul (30), S. anatum (27), S. infantis (23), and S. havana (20).

Regional Distribution of Salmonella Cases - 1983

	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. Total
Serotype cases	186	56	46	36	68	156	548
Multiple Infections	0	0	2	0	0	5	7
Persons	186 (155)	56 (56)	44 (37)	36 (67)	68 (74)	150 (129)	540 (518)

Figures in brackets are persons infected in 1982.

Salmonella Food Poisoning Outbreaks

No major food poisoning outbreaks were recorded; however, several small family associated incidents were recorded particularly in the metropolitan region. Commencing in September an outbreak of S. agona infection occurred involving a total of 15 persons mainly children with mild symptoms of enteritis. Cases occurred in 8 separate families located in the Perth metropolitan and south west regions of the State.

S. agona which was introduced into the foodchain of livestock and humans in the United States and Europe in imported Peruvian fish meal used as an animal feed ingredient, is recognised as a major international pathogen.

S. agona cases in Western Australia have previously been confined only to travellers and immigrants. The outbreak was paralleled by a rapid rise in isolations from sewerage sampled at several towns throughout the state suggesting either that sub-clinical infections were widespread in the population or that a potential vehicle of infection was being discharged into sewerage systems.

During December after the outbreak subsided S. agona was isolated from imported paprika powder by the Food Hygiene laboratory; however, neither paprika, foodstuffs nor an animal reservoir has been proven as the source of infection.

Typhoid and Paratyphoid

S. typhi was diagnosed in a 75 year old male carrier with a history of typhoid fever first diagnosed in Naples in 1942.

S. paratyphi A was isolated from an adult male traveller recently returned from Indonesia.

S. cholerae-suis

Infections with S. cholerae-suis, a potentially serious human pathogen were diagnosed in separate incidents in a 70 year old man and an infant male.

Exotic Infections

Salmonella infections most probably acquired outside Australia by travellers or immigrants comprised 20 serotypes and involved 28 patients. Serotype totals and sources of exposure are tabulated below.

Serotype	Source		Serotype	Source	
S. agona	1	Bali	S. mbandaka	2	Europe
S. anatum	2	S.E. Asia	S. meleagridis	1	S.E. Asia
S. bareilly	1	S.E. Asia	S. newport	3	S.E. Asia
S. blockley	2	S.E. Asia	S. ohio	1	India
S. braenderup	1	Europe/Asia	S. panama	1	Taiwan
S. give	2	S.E. Asia	S. saint paul	1	Bali
S. grabou	1	S. Africa	S. senftenberg	2	S.E. Asia
S. hvittingfoss	1	S.E. Asia	S. singapore	1	S.E. Asia
S. infantis	1	Europe/Asia	S. virchow	1	S.E. Asia
S. livingstone	2	S.E. Asia	S. weltevreden	3	S.E. Asia

One traveller recently returned from Iceland via Bombay was co-infected with S. braenderup, S. infantis and S. mbandaku.

Shigella Infections

A total of 385 cases was diagnosed during 1983 compared with 315 cases in the previous year and 294 in 1981. Regional Shigella case totals have differed markedly over the years and the totals for the past 3 years are tabulated below.

Shigella Cases	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. Total
1981	43	13	33	99	51	55	294
1982	84	26	19	76	51	60	316
1983	52	30	76	57	78	92	385

Regional Distribution of Clostridium difficile Cases - 1983

	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. Total
Cases	82	38	11	9	13	9	162
Cytotoxin+	47	19	1	3	6	2	78

Other Enteric Infections

Edwardsiella tarda was isolated from 7 patients, predominantly Aboriginal children, in the Kimberley region. E. tarda occurs naturally in reptiles and birds associated with fresh water habitats.

Plesiomonas shigelloides was isolated from a 1 year old boy in the south west region.
Vibrio parahaemolyticus K18 kanagawa positive was isolated from a 36 year old woman resident in the metropolitan area with a history of consuming locally harvested estuarine mussels.
Non-cholera vibrio infections were detected in an adult male and female. One patient who had recently returned from India was co-infected with Shigella flexneri type 3.
Yersinia enterocolitica infection was diagnosed in a 34 year old woman resident in the metropolitan region.

Parasitology Section

A total of 1,397 individuals was found to harbour enteric parasites. Multiple infections were common and 1,572 identifications were recorded.

Regional Distribution of Parasites - 1981, 1982, 1983

Year	Metro.	S.W.	S.E.	Central	Pilbara	Kimberley	W.A. Total
1981	248	267	14	228	208	434	1,399
1982	359	421	50	198	144	413	1,585
1983	414	209	118	179	120	532	1,572

The most common intestinal parasites throughout all regions was G. lamblia with 816 identifications and Hymenolepis nana with 331. Hookworm 149, G. lamblia 170, H. nana 128 and St. stercoralis 68 were predominant in the Kimberley region.
Parasites identified during routine screening of South East Asian immigrants comprised, A. duodenale, A. lumbricoides, C. sinensis, E. histolytica, G. lamblia, H. nana, St. stercoralis and T. trichiura.

ENVIRONMENTAL SECTION (TABLE II E)

A total of 16,390 samples was examined and 2,620 (16%) yielded organisms of public health significance in monitoring hygiene.

The specimens examined comprised water catchment streams, dams, lakes, reservoir sediments, rivers and coastal waters used for recreation, livestock, pets, abattoir and meat process effluents, sewerage, drains, animal feed and wildlife. Effluents sampling sites range from Cockburn Sound and Rottnest Island in the metropolitan region to the Kimberley region.

Effluents

Salmonella serotype patterns in sewerage followed established patterns until September, when S. agona rapidly became the major strain detected at sampling stations throughout wide areas of the State. In the subsequent period, S. agona infections occurred for the first time in a number of families resident in the metropolitan and south west regions of the State. Sporadic human cases continued into December and isolations of S. agona in sewerage gradually subsided. S. agona was also detected at high frequency in sludge at metropolitan sewerage treatment plants, but was not detected in abattoir, poultry or meat processing effluents.

Waters

No significant contamination was detected in coastal, river or estuarine waters used for public recreation and contamination was confined to the immediate vicinity of coastal sewerage and abattoir outfalls.

Shoreline waters at passive wetland recreation sites subjected to large numbers of waterfowl and silver gulls were again found to be contaminated and the chain of infection extended via silver gulls and waste disposal sites to the island breeding colony at Carnac close to Cockburn Sound.

A survey of seawater to assess the impact of boating activities during peak holiday periods at Rottnest Island was undertaken and no significant contamination was detected.

The results of bacteriological monitoring on water catchment streams followed established patterns. Naturally occurring salmonella was detected in approximately 20% of samples. S. bovis-morbificans increased in frequency however, and was isolated from undisturbed sites as well as areas subjected to human disturbance.

Salmonella was detected at low frequency in metropolitan reservoir sediments during annual cleaning of open reservoirs.

Livestock and Pets

Monitoring of live broilers arriving at poultry processing centres showed Salmonella excretor rates averaging less than 5%, with occasional batches exceeding 50%. Serotypes followed established patterns and no unusual or new serotypes were prominent.
Campylobacter jejuni was again detected at high frequency in cloacal samples from live broilers and also a domestic dog undergoing quarantine.
Salmonella was detected at low frequency in imported dogs and a cat.

Animal Feed

A wide range of Salmonella was detected in approximately 60% of meat meals used as ingredients of animal feed; however, rates of infection in finished feed averaged only 1%.
S. kentucky, a rare exotic strain, was isolated from imported soya bean meal.

Wildlife

Both naturally occurring and exotic infections associated with human activity and habitat disturbance were detected in reptiles and birds on Penguin and Carnac Islands. One human S. typhimurium phage 202 infection was linked to close contact with infected quokkas. Salmonella was also isolated from reptiles, amphibia, a Welcome swallow and a crow on Rottnest Island. All these species frequent the sewerage lagoon and are a potential source of contamination to water storage facilities.
A wide range of serotypes were isolated from captive emus at a remote island field station.
E. tarda, an occasional human pathogen, was isolated from feral buffalo undergoing abattoir processing.

FOOD HYGIENE SECTION (TABLE II E)

Regular monitoring of meat smallgoods, poultry, foodhandlers, factory hygiene and imported foodstuffs continued throughout the year and the number of samples examined totalled 11,150 an increase of 811 over the previous year.

Food Poisoning and Food Complaints

During the year a total of 94 alleged good poisoning incidents were investigated and 225 samples were submitted for testing. Clostridium perfringens was isolated from food samples from a fast food restaurant. Staphylococcus aureus and Clostridium perfringens were isolated from cooked rice and roast pork.

Canned mushrooms were tested for botulinum toxin with negative results following the diagnosis of botulism in the eastern states. In other investigation high levels of S. aureus were detected in a mexican rice dish, Clostridium perfringens was isolated from imported oysters and B. cereus food poisoning was traced to contaminated pork pies.

S.agona Investigations

The isolation for the first time in September of S. agona from humans resident in Western Australia resulted in an intensive search for the source of the infection.
In the October to December inclusive quarter 322 samples of food and food products were tested for S. agona. The majority of foods were sampled at retail level and included numerous types of smallgoods manufactured in the eastern states including milk powder, raw egg products, sesame products, raw chicken, ice cream and imported paprika powder.
Five samples of paprika powder imported from Spain were submitted for testing by the Commonwealth Department of Health. One sample proved to be positive for S. agona and during repeat testing of the consignment S. bredeney and S. typhimurium were isolated. No isolations of S. agona have been reported previously from food sources originating in Western Australia. Earlier isolations were recorded from Phillipine prawns in 1980 and mechanically deboned chicken and beef burger mince from Queensland in 1982.

Imported Foodstuffs

Pathogens detected in imported foods from overseas or interstate sources were:

S. abony	Raw prawns	S. mbandaka	Cummin
S. agona	Paprika powder	S. oranienberg	Buffalo meat
S. anatum	Raw prawns, hamburgers	S. senftenberg	Coconut
S. chester	Buffalo meat	S. typhimurium	Oysters
S. infantis	Beef, buffalo	S. weltevreden	Raw prawns
S. lansing	Hamburger	V. parahaemolyticus	Cooked and raw prawns
S. lexington	Raw prawns		

Food Monitoring

Mechanically de-boned meats.

Salmonella contamination in mechanically deboned chicken ranged from approximately 3% to 30%; S. muenchen and S. sofia were the major strains isolated. The significance of low level contamination by Salmonella of these products is now assessed using M.P.N. techniques. Other mechanically deboned products tested included beef, lamb, mutton and pork.
Serotypes detected comprised S. adelaide, S. anatum, S. bovis-morbificans, S. derby, S. potsdam, S. rubislaw, S. singapore, S. sofia and S. typhimurium.
S. ohio was isolated from 4 samples of raw hamburger meat.

Poultry

The overall annual average of 18% Salmonella carcass contamination rate showed a further improvement over the previous annual rate of 30%. A total of 365 samples was sampled and 67 yielded Salmonella by the whole body standard rinse technique. Serotypes identified comprised S. anatum 2, S. infantis 30, S. muenchen 5, S. sofia 16, S. typhimurium 3 and S. 4,12:d:-5.

Smallgoods Monitoring

The quarterly and annual totals of samples tested and positive findings are tabulated below. Figures in brackets are positive samples.

Samples	Jan.-March	April-June	July-Sept.	Oct.-Dec.
Handwash	562 (5)	708 (10)	652 (1)	651 (6)
Equipment	216 (4)	194 (5)	165 (1)	206 (2)
Raw ingredients	51 (5)	140 (8)	111 (10)	61 (2)
Inter. product	36 (6)	41 (3)	32 (2)	32 (1)
Final product	96 (2)	121 (0)	140 (0)	126 (3)
Total	961 (22)	1,204 (26)	1,100 (14)	1,076 (14)
% Rate	2.3%	2.1%	1.3%	1.3%

A total of 17 serotypes was identified and the major isolations comprised S. adelaide 4, S. anatum 5, S. bovis-morbificans 5, S. derby 22, S. give 5, S. infantis 8 and S. typhimurium 8.

Restaurants, Fast Food Outlets and Market Stalls

A total of 969 samples was submitted by Local Authorities comprising ready-to-eat foods and associated equipment swabs.
Staphylococcus aureus was prominent among isolations and B. cereus, E. coli, Clostridium perfringens, Vibrio parahaemolyticus and Salmonella were also isolated at low frequency.
Foods implicated included sauces, gravies, fillings, cooked rice, coleslaw and cooked fish. Kitchen utensils yielded 3 isolations of Salmonella.

Goat Milk

A total of 42 samples was submitted by Local Health Authorities on behalf of the Public Health Department. A number of plate counts exceeded 10 million organisms per millilitre and faecal coliforms ranged from 0 to 4,300 organisms per millilitre.
Staphylococcus aureus phage type 42E was isolated from 5 samples and on 1 occasion the B. cereus count exceeded 100,000 organisms per millilitre.

Food Exports

Export beef samples were tested on behalf of the Department of Primary Industry and 1 sample yielded S. muenchen. Other export items included frozen milk tested for the same authority, these findings were satisfactory.

New Techniques

The Food Hygiene Laboratory continued to improve sampling techniques, particularly in frozen products and introduced these techniques to Public Health and Local Authorities. A fluorescein dye test was introduced to test faults in can seams, leading to failure of the vacuum.

WATER EXAMINATION LABORATORY (TABLE II E)

	Surveillance	Treatment-Control Samples
Bacteriological Samples 23,084		
Recreational waters	4,229	0
Supply Source to Consumer	6,586	12,269
Significant findings		
Tested for Salmonella	3,799	
Salmonella isolated	68	= 1.79% positive samples

Twenty-two of the drinking water samples from which Salmonella was isolated satisfied the N.H. & M.R.C. Indicator Standards for drinking water.

Amoeba Samples 7,009

Recreational waters	4,171	0
Supply Source to Consumer	1,113	1,725
Naegleria Recovery		
Recreational waters	127	0
Potable supply	64	110
Other Amoeba		
Recreational waters	726	0
Potable supply	362	343

Of the 1,732 samples from which free living soil and water amoeba were recovered in temperature range 35° to 45° - only 301 Naegleria were identified. N. fowleri was detected in the Public Works Department main, chlorinated distribution at Brookton during February.

Points of Interest

Soil and Fresh Water Amoeba

There has been a significant work-load increase in this section of the Water Examination Laboratory; 2,550 more samples than in 1982. Staffing ceilings created the necessity to consider all treated recreational water from which viable amoeba were recovered, in the temperature range 35° to 43°, as 'Unsatisfactory'.

Treated Recreational Waters

Public, semi-public and limited access swimming pools and spas continue to be sampled by Local Health Authorities. Laboratory staff play an active part in surveillance and 'pool sense' programmes.

Roofed Reservoirs

Several reservoirs have now been roofed, some with floating plastic, a substance likely to promote the growth of certain organisms. Worthy of note is the lack of Pseudomonas aeruginosa in samples examined; recovery of enterotoxigenic Aeromonas hydrophila in one such reservoir gives cause for alarm.

SEROLOGY SECTION (TABLE II F)

Statistics

The numbers of specimens, 49,447, showed little change from the previous year.

New Equipment

ELISA reader. An automated ELISA plate reader was purchased. The results are processed automatically by a microcomputer.

New Procedures

Campylobacter	A diagnostic test was introduced., designed to detect Campylobacter antibodies in serum by the enzyme-linked immunosorbent assay (ELISA).
Fasciola	Two new procedures were introduced, viz., immunoelectrophoresis and indirect haemagglutination.
Hydatid	An immunoelectrophoresis test was introduced.
Leishmania	An indirect haemagglutination test was added.
Legionella	An improved and economical enzyme-linked immunosorbent test was introduced.
Malaria	An indirect fluorescent antibody test was brought into operation.
Treponema	Specific Treponemal antibody in syphilis is now detected by fractionation of the patient's blood by fast protein liquid chromatography and the subsequent testing of the fraction in the indirect haemagglutination test. This test replaces the FTA-Igm test.
Trichinosis	Two new tests, viz., counter immunoelectrophoresis and immunodiffusion are available.
Trypanosomiasis	A new indirect haemagglutination test for African trypanosomiasis was introduced.

New Accommodation

An additional four modules were occupied in August when the Cytogenetics Section vacated their area adjacent to the Serology Section and moved to new quarters.

SEXUALLY TRANSMITTED DISEASES SECTION (TABLE II G)

Notifiable Diseases

Total number of isolations of N. gonorrhoea:	859
Number of beta-lactamase producing N. gonorrhoea:	47
Number of tourists from abroad	18
Number in local patients	23
Number of contacts of overseas visitors	4
Other	2

Work-load

A total of 43,930 specimens was received; an increase of 1% on the previous year and a 44% increase since 1979.

Statistics

Total Canadian Work Units 429,330.

Staff

The staffing level remains at two technologists and one laboratory assistant. It can be seen from the work-load figures that this staff level has had to cope with a 44% increase since 1979.

Activities

(a) During 1983, Mr. A. Ismail attended a scientific meeting held by the Australian Society for Microbiology in Brisbane. Mr. Ismail's participation was subsidised by the Department, as a workshop on the organism Neisseria gonorrhoea was of specific interest to this laboratory. The workshop concerned itself with the technical aspects of M.I.C. testing. M.I.C.'s provide an essential monitor of the organism's treatment within the community for the V.D. Control Branch.

(b) Some research was conducted into Abbott Laboratories' Gonozyme test for non-cultural detection of antigen to N. gonorrhoea. Although a more advanced technique, some unacceptable time delays resulted, albeit with a small percentage of patients.

(c) Sixth year medical students continue their visits to the laboratory as part of their formal venereology tuition.

VIROLOGY SECTION (TABLE II H, II J)

Work-load

The total number of specimens received by the Virology Laboratory in 1983 was 52,715 which represents an increase of 7.2% over the 1982 figure.

Although the percentage of positive diagnoses (by serology and isolation techniques) has remained steady at approximately 9.5% this is readily explained by changing epidemiological patterns.

Respiratory Viruses

There was a marked influenza A epidemic which peaked in August. During the year there were 62 serological diagnoses and 60 isolations - in August there were 25 serological diagnoses and 25 cases proven by virus isolation.

There was a very low incidence of influenza B virus this year (of epidemic August/September 1982). There were no isolations of the virus and only 28 serological diagnoses throughout the year.

Respiratory syncytial virus (RSV) - there were 155 diagnoses this year (only 4 less than in 1982) but the season was unusually prolonged with the peak continuing from August through to November and December.

Mycoplasma pneumoniae

There were 284 cases diagnosed (cf 179 in 1982 and 42 in 1981). The disease has shown its usual spring/summer pattern.
Two patients were hospitalised with Guillain-Barre syndrome approximately six weeks after their M.pneumoniae infections.

Enteroviruses

The echovirus 11 outbreak which commenced in March 1982 ended in March 1983. Coxsackie B_2 and B_3 viruses have occurred throughout the year but not in epidemic proportions. They have been associated with aseptic meningitis, respiratory and gastrointestinal symptoms.

Herpes simplex virus

This year 1509 diagnoses have been compared with 1285 in 1982, all but 14 being achieved by isolation methods.
Routine typing of all herpes simplex isolates was commenced during May 1983. The reagents used are mouse monoclonal antibodies to HSVI and HSVII and the typing is performed by an indirect immunofluorescence technique.

Typing

Herpes typing during the months June to December inclusive provided the following results : There was a total of 265 Type I isolates (68 children and 197 adults) and 766 type II isolates (4 children and 762 adults).
In females up to 30% of genital isolates are type I while in males up to 14% are type I.

A 22 year old woman was diagnosed as having herpes simplex encephalitis when she was 29 weeks pregnant by demonstrating an antibody rise in the blood and cerebrospinal fluid. She responded to Acyclovir therapy and delivered a full-term infant who showed no signs, symptoms or serological evidence of an intrauterine herpes simplex infection.

Measles

There has been a large measles outbreak in the community. Most cases were diagnosed on clinical grounds alone but 9 diagnoses have been confirmed by serology and 2 of these patients (both aged less than 7 years) gave a history of receiving attenuated measles vaccine in early childhood.

Arboviruses

No cases of Australian encephalitis were diagnosed.
Only 37 cases of Ross River virus were diagnosed (of 103 in 1982). The 12 cases which occurred from October to December originated from the Northern Territory and Mandurah region.

Dengue was diagnosed in a married couple who returned from a holiday in Tahiti where an epidemic of dengue was in progress during May. Specific IgM was detected in the serum of the wife; the husband had very high Dengue IgG levels, but specific IgM was not detectable. The clinical illness consisted of fever, headache, rash, myalgia and prolonged fatigue.

Hepatitis

There has been a marked increase in hepatitis A cases diagnosed in 1983 (345 cf 206 in 1982). The peak occurred in June. The hepatitis B figure of 190 is very similar to that of last year.

In May, the full range of hepatitis serology tests, previously performed by radioimmunoassays was replaced by enzyme immunoassays (EIA). Batch testing is still carried out for reasons of economy but all tests are performed more frequently than before, in particular, EIA for hepatitis B surface antigen is performed daily.

Chlamydia

Positive isolations numbered 1,372 this year. A commercially available immunofluorescence method for identifying the inclusion bodies in our routine tissue culture method was evaluated but was not found to be significantly more sensitive than the current iodine-staining method and was considerably more expensive and labour intensive.

Electronmicroscopy (EM)

This method was used to examine 710 clinical specimens. 562 faecal specimens yielded the following positive results§; 104 rotaviruses and 17 adenoviruses. Vesicle fluids, swabs in viral transport medium (VTM) and smears on slides totalling 144 were received for EM examination. These yielded 13 herpes viruses and 4 pox viruses (orf and molluscum contagiosum). This low positivity rate can be attributed to the unsuitability of many of the specimens (especially those in VTM) for electronmicroscopy examination.

Congenital cytomegalovirus (CMV) infection

Pre- and post-mortem material were received from a baby with congenital CMV infection. The virus was isolated from the urine, throat swab and faeces from specimens collected before death and the virus was also isolated from post-mortem liver. The mother reported to her general practitioner during the first trimester of pregnancy with a "viral illness". At delivery the baby had a florid purpuric rash, jaundice and hepatosplenomegaly and only survived 24 hours.

Congenital rubella

A serological diagnosis of congenital rubella was made in a male infant from Darwin whose only clinical history provided was "small for dates". Rubella - specific IgM was detected in sera collected when the infant was 4 and 8 weeks old. Rubella virus was isolated from a throat swab collected at 7 weeks of age.

Epstein-Barr Virus (EBV) infections

A total of 144 cases of EBV infection have been diagnosed this year. Most have presented as infectious mononucleosis (I.M.) syndromes but other presentations have been fever of unknown origin, arthritis, hepatitis and unexplained rash.
The development of an EBV-specific IgM test (fluorescent antibody assay) has permitted the diagnosis of several patients who were Paul Bunnell (heterophile antibody) negative.
One 14 year old girl developed classical I.M. which progressed extremely rapidly to acute hepatic failure and she died in the intensive care unit. Very few cases of fatal I.M. due to hepatic failure have been reported.

Accommodation

There have been no changes or alterations to the laboratory and space remains at a premium. The changes in accommodation which are planned for early 1984 should alleviate the problem and provide better separation of working areas for the different types of tests and techniques performed.

Equipment

An Airfuge ultracentrifuge was purchased from Beckman Instruments, Incorporated.

Hepatitis B Survey

A survey of hepatitis B immunity was performed at the request of Dr. J.C. McNulty, Commissioner of Public Health. Sera were collected from almost 400 members of the laboratory staff of the State Health Laboratory Services. Results indicate that approximately 11% of the staff have markers of past infection with hepatitis B. This is higher than in the blood donor population but analysis of ethnic background, needle-stick accidents, years worked in "high-risk" laboratory areas etc. will have to be determined before the significance of this figure can be interpreted. It is certainly much lower than figures published in the U.S.A.

Water Virology

The investigation of movement and survival of viruses during groundwater recharge is continuing.

A study of rotavirus recovery during ultrafiltration is also being carried out with the aim of developing techniques to demonstrate this virus in groundwater.
The main use of the machine will be in the preparation of smears and vesicle fluids for electronmicroscopy.
The Quantum II has been hired from Abbott Laboratories in conjunction with the changeover to enzymeimmunoassay for hepatitis serology.
New laminar-flow hoods and a carbon-dioxide incubator are being held in store prior to installation in the new areas of accommodation due to be occupied in February 1984.

Staff

Dr. Peter Phillips was given three years leave of absence from the State Health Laboratory Services to accept a position as virologist in Goroka, Papua New Guinea, where his brief is to establish a clinical diagnostic virology laboratory.
Dr. Marion Bucens was appointed visiting virologist to King Edward Memorial Hospital for Women in August, 1983.

In 1976 the total number of specimens processed in the laboratory was 37,417 and the total number of staff was 21. This year with a total number of 52,715 specimens the total number of staff is only 24. This lag in increase of staff levels to cope with the rapidly increasing work-load puts strain on staff resources.

Research and Development

Murine cytomegalovirus:

Experiments conducted by Mr. G.B. Harnett in collaboration with Dr. G. Shellam, University Department of Microbiology, have shown that genetically determined *in vivo* resistance of mice to murine cytomegalovirus is also expressed at a cellular level *in vitro*. Further experiments exploring the role of interferon in genetic resistance were performed. A joint application by Dr. G. Shellam and Mr. G.B. Harnett to the Ramaciotti Foundation for funds to extend these experiments to include human genetic resistance to viruses was successful.

Monoclonal Antibodies

In view of the likely future importance of monoclonal antibodies in the laboratory diagnosis of viral diseases a pilot experiment was conducted in conjunction with Mr. J. Charlick, University Department of Microbiology, to produce monoclonal antibodies to herpes simplex virus. Clones of hybrid cells producing anti-herpes virus antibodies were grown successfully and several aspect of the technology required for the routine production of monoclonal antibodies were investigated.

7. COMBINED CLINICAL BIOCHEMISTRY SERVICE (TABLE III)

A major event in the year was the move to the new Clinical Biochemistry laboratory in August. Despite minor problems, the move went well and all Clinical Biochemistry staff are to be congratulated in the way they maintained the service to the community. By chance the move began the day after Professor Curnow departed on three and a half months study leave. During the year Dr. Garcia-Webb was invited to join the Editorial Board of Clinica Chimica Acta, Professor Curnow having resigned from the Board earlier in the year. Successes in examinations continued with Dr. Beilby and Mr. Randall both passing the membership examination of the Australian Association of Clinical Biochemists. Another successful MSc Course in Clinical Biochemistry finished in November. This success was unfortunately marred somewhat with the news in December that funding for MSc students would no longer be available. Despite its attractiveness for short term economic gain, this removal of funding is undoubtedly a backward step, undermining as it does a significant contribution to education in clinical biochemistry in Australia.

Service

The work-load has continued to increase, going up by a further 14.5% over the 1982 figure.

The Technicon SMAC II Auto Analyzer system was installed in August. The system although working well by the end of the year was plagued by a series of minor breakdowns during an extended settling in period. The system is not suited to after-hours work and a new feature arranged at the end of the year was the rental of a Technicon RA1000 specifically for after-hours work.

New methods were introduced for serum dehydroepiandrosterone sulphate, serum aluminium, plasma porphyrins and plasma lactate dehydrogenase isoenzymes.

Staff

A significant event towards the end of the year was the appointment of a new Level 5 Scientific Officer. On the other hand, unavoidable delays in replacing staff have caused some interruptions in the usual excellent quality of service to the community that the laboratory provides.

Teaching, Research and Development

The major thrusts of the Department - biochemical defects in diabetes, thyroxine binding globulin associations, gonadotrophin releasing hormone treatment of infertility and the provision of a statewide reference laboratory for the diagnosis of porphyria - have continued. A number of publications have ensued from this work. A major study of porphyrin metabolism in chronic renal failure patients on dialysis was commenced in September. The study is in collaboration with the Dermatology Department at Queen Elizabeth II Medical Centre.

Visitors

The Department was visited by Dr. Peter Dennis from Prince Henry's Hospital, Melbourne and by Professor Harry Pardue from Purdue University, U.S.A.

Publications

J.P. Beilby, M. Dick, P. Kay and F.E. Watson : The microheterogeneities of thyroxine-binding globulin and $\alpha_1$protease inhibitor (α_1-antitrypsin) are interrelated. Clin.Chim.Acta.(1983)133,51-63.

C.I. Bhagat, P. Garcia-Webb, F. Watson and J.P. Beilby : Interference in radioimmunoassay of total serum thyroxin due to thyroxin-binding autoantibodies. (Letter) Clin.Chem.(1983)29(6),1324-1325.

A.M. Bonser, P. Garcia-Webb and C.I. Bhagat : Studies on the inhibitory effect of bacitracin on ^{125}I-labelled insulin internalization in the rat hepatocyte. Biochim.Biophys.Acta(1983)762, 390-397.

A.M. Bonser, P. Garcia-Webb, and C.I. Bhagat : Receptor-mediated ^{125}I-labelled insulin degradation in the rat hepatocyte. Studies using chloroquine. Aust.J.Exp.Biol.Med Sci. (1983)61(5),569-579.

J.L. Dempsey, A.A. Morley, R.S. Seshadri, B.T. Emmerson, R. Gordon and C.I. Bhagat : Detection of the carrier state for an X-linked disorder, the Lesch-Nyhan syndrome, by the use of lymphocyte cloning. Human Genetics (1983)64(3),288.

M. Dick : Renal failure caused by mercuric chloride. Med.J.Aust.(1983),1,406.

P. Garcia-Webb, S. Bottomley, and A.M. Bonser : Instability of C-peptide reactivity in plasma and serum stored at -20°C. Clin.Chim.Acta,(1983), 129,103-106.

E.J. Keogh, A. MacKellar, S.A. Mallal, A.G. Dunn, S.C. McColm, C.P. Somerville, C. Glatthaar, T. Marshall and J. Attikiouzel : Treatment of cryptorchidism with pulsatile luteinizing hormone-releasing hormone (LH-RH). J.Ped.Surg.(1983),18(3),282-283.

E.J. Keogh, A. Mackellar and C. Lawson-Smith : Gonadotrophin releasing hormone therapy for the undescended testis. Progress in Reprod.Biol.& Med. (1983),10,3791-3793.

M.T. Mulcahy and M. Dick : Decrease in gamma glutamyltransferase activity in early amniotic fluid in fetal trisomy 18 syndrome. B.M.J.(1983),1,144.

P.T. Pullan, P.M. Finch, R.W.M. Yuen and F.E. Watson : Endogenous opiates modulate release of growth hormone in response to electroacupuncture Life Sciences(1983),32, 1705-1709.

P.T. Pullan, F.E. Watson, S.S.W. Seow and W. Rappeport : Methadone-induced hypoadrenalism. (Letter) Lancet(1983)1,714

F. Watson, M. Dick and D. Tha Khin : Laboratory evaluation of thyroid function in Australian Aborigines. Med.J.Aust.(1983),1,66-69.

T.A. Welborn, P. Garcia-Webb, A. Bonser, V. McCann, and I. Constable : Clinical criteria that reflect C-peptide status in idiopathic diabetes. Diabetes Care(1983),6,315.

8. COMBINED UNIT IN CLINICAL PHARMACOLOGY AND TOXICOLOGY (TABLE IV)

Introduction

The unit is a combined service of the State Health Laboratory Services and the Department of Pharmacology of the University of Western Australia. It provides both quantitative and qualitative analyses of drugs and other chemicals in biological specimens for clinical and forensic purposes.

Senior Staff

Professor J.W. Paterson, M.B.B.S., B.Sc., A.K.C., F.R.A.C.P., F.R.C.P.
Honorary Director of Unit.

Dr. J.M. Potter, B.Med.Sc., M.B.B.S., Ph.D.
Senior Lecturer in Pharmacology (UWA).

Dr. K.F. Illett, B.Pharm., Ph.D.
Senior Lecturer in Pharmacology (UWA).

Dr. R.L. Nation, Ph.C., M.Sc., Ph.D. Pharmacologist
(resigned October 1983).

Dr. Nation resigned in October to take up an academic appointment at the South Australian Institute of Technology. During his two years in charge of the laboratory, considerable advances were made. It is hoped that his successor will be appointed early in 1984.

Accommodation

In August, the unit moved to new laboratories on the first floor of 'J' Block. Due to increases in work-load, and variety of tests over recent years, the space allocated was inadequate and extra accommodation has been provided in the basement of 'K' Block. This latter area has been set up for screening of urine samples for narcotic drugs, a procedure which generates some 16% of the current work-load.

Work-load

As in 1982, the work-load of the unit has been quantified from the number of specimens received, from the number of analyses performed and from the number of Canadian Work Units produced.

The numbers of specimens received by the laboratory in 1983 are summarized in Table IV. For comparative purposes the corresponding figures for 1982 are also shown. Of the specimens received in 1983, 88% (20,864) were for clinical drug assays and numbers in this category increased by 16% over those recorded in 1982 (18,051). Overall, a total of 23,579 specimens were received in 1983 and this figure was 14% higher than that for 1982.

The numbers of analyses performed for individual drugs or groups of drugs in 1983 are shown in the table in the text. There were 24,872 analyses performed on the 23,579 specimens received by the laboratory; in many cases more than one analysis was required for any one specimen. In each of the twelve months in 1983 there were increased numbers of analyses compared to the corresponding figures for 1982. Overall, the total of 24,872 analyses performed in 1983 was 8% higher than the figure of 22,992 for 1982.

NUMBER OF ANALYSES CONDUCTED FOR INDIVIDUAL DRUGS OR GROUPS OF DRUGS - 1983

DRUG OR PROCEDURE	TOTAL
Acetylator Status	15
Alcohol (Clinical)	408
Alcohol (Forensic)	389
Amitriptyline + Nortriptyline*	279
Carbamazepine*	2,337
Carboxyhaemoglobin	23
Cholinesterase	718
Disopyramide*	65
Drug Screen	1,151
Drug Screen (Forensic)	118
Ethosuximide*	77
Imipramine + Desipramine*	423
Mexiletine*	353
Narcotic Scan (ADA)	4,899
Narcotic Scan (Other)	1,209
Nortriptyline*	1
Organochlorine	178
Paracetamol	108
Phenobarbitone*	1,150
Phenytoin*	3,882
Procainamide*	28
Quinidine*	479
Salicylate*	111
Specific Drugs (Forensic)	69
Sulthiame*	16
Theophylline*	4,637
Valproic Acid*	1,048
Miscellaneous (Clinical)	124
Miscellaneous (General)	125
Pharmaceutical control	169
Redirected samples	283
TOTAL	24,872

*Drugs assayed under therapeutic drug monitoring scheme.

Of the total number of assays performed in 1983, 29.4% were requested from Sir Charles Gairdner Hospital and this represented the major single source of drug assay requests. The other metropolitan teaching hospitals (Fremantle Hospital, Princess Margaret Hospital, King Edward Memorial Hospital and Royal Perth Hospital) together accounted for 8.6% of the total assays performed. The Alcohol and Drug Authority plus Cyrenian House, Mental Health Services (including Swanbourne, Graylands and Heathcote Hospitals) and Occupational Health Department accounted for 24.1%, 6.3% and 1.6% respectively, of the total assays.

Work-load was also measured in terms of Canadian Work Units. As part of regular updating procedures recommended by the Canadian Schedule, all Work Unit Standards were re-evaluated during the latter half of 1983. The new standards which will not be introduced until early 1984 were established by retiming all tests to allow for changes in assay technology and associated procedures and will be fully discussed with the Pathology Advisory Committee. There was a total production of 992,319 Canadian Work Units in 1983 which was 3% higher than the figure of 960,854 for 1982.

From the Canadian Work Unit data, it was possible to estimate the proportion of total time spent on various analyses. In 1983, drug assays for anti-epileptic drugs, theophylline and clinical drug screens accounted for 14%, 9% and 16% respectively of the yearly total of analysis time. Narcotic scans and forensic analyses (drug screens and specific assays) accounted for 16% and 6% respectively of the total analysis time.

In summary, the work-load of the unit, as measured by number of specimens received, number of analyses performed and number of Canadian Work Units produced, increased substantially in 1983.

Therapeutic Drug Monitoring

Therapeutic drug monitoring services are offered for the drugs indicated in the table, and in total these assays accounted for 59% of all assays in 1983.

The number of clinical drug assays for the anti-asthmatic drug, theophylline, was considerably greater in 1983 than in 1981 and 1982. During 1983 the on-line theophylline assay service provided for outpatients in clinics at Sir Charles Gairdner Hospital and Fremantle has continued.

Clinical assays for the antiepileptic drugs continued to be an important component of the assay services and overall there was a 10% increase in assays for these drugs in 1983, compared to 1982.

During the year, assay procedures for the anti-cancer drug methotrexate were established and measurements of its blood concentrations are now routinely available.

Drug Screening

The screen procedures have been designed to detect commonly prescribed or illicitly used drugs, primarily in patients suffering from known or suspected drug overdosage. During 1983 a total of 1,151 drug screens was performed and this figure was 14% higher than that for 1982.

Narcotic Scans

Narcotic scans for the detection of narcotics and other drugs in urine have been performed by the unit for a number of years. Of the narcotic scans performed, 4,899 (80%) were for the Alcohol and Drug Authority and 1209 (20%) for Cyrenian House.

After Hours Assay Service

This service is provided for urgent clinical drug assays and drug screens. During 1983 a total of 1,392 assays were requested after hours, of which 89% were for Sir Charles Gairdner Hospital.

Quality Control of Clinical Drug Assays

For some years the unit has participated in the International Quality Control programme co-ordinated by Professor A. Richens from Cardiff University. During 1983, the Unit continued with the theophylline and anti-epileptic programmes commenced earlier and, in addition, joined programmes for the tricyclic antidepressants, amitriptyline, nortriptyline, imipramine and desipramine. Other quality controls were also done under the scheme run by the Royal College of Pathologists of Australia. The unit performed well in all of these external quality control programmes. In addition the in-house quality control programme was reviewed and upgraded during the year.

Computerization

Progress has been made to finalise the choice of a larger micro computer which is urgently needed to improve the storage and retrieval of assay data. In addition the new machine will be capable of being interfaced with various analytical instruments used in the laboratory.

Equipment

During the year the unit acquired a replacement gas chromatograph mass spectrometer (GCMS). The instrument has been set up with a capillary column and a library of drug standards is being compiled. The GCMS has been invaluable in identifying unknown compounds in drug screening procedures. The unit also acquired another high performance liquid chromatograph equipped with an automatic injector and a scanning ultra-violet detector. This instrument has been of great value both in the development of new assay methods and in the analysis of unknown compounds.

Research and Development

1. The newly available Abbott fluorescence polarization technique (TDX) has been thoroughly investigated in-house. Samples were analyzed by the TDX system and compared to our standard method of enzyme multi speed immunoassay. Results for the evaluation for the anticonvulsant drugs phenytoin, carbamazepine, phenobarbitone and valproic acid, and the antiasthmatic drug theophylline showed a correlation coefficient of better than 0.98. Preliminary results comparing digoxin assayed by the TDX technique and by radio-immunoassay (RIA) are encouraging and indicate that the TDX technique has a number of advantages over the RIA method as well as providing acceptable correlation and reproducibility. The TDX system has been purchased and is due for installation early in 1984.

2. Methods for quantifying methadone in plasma have been developed with a view to analysing samples from patients on methadone maintenance programmes conducted by the Alcohol and Drug Authority.

3. A method has been developed from the analysis of tocainide, one of the newer antiarrhythmic drugs. This assay has been used particularly at the Sir Charles Gairdner Hospital Coronary Care Unit to enable dose optimisation in selected patients.

4. A number of salicylate levels in plasma from arthritic patients have been analysed to determine if salicylate concentrations are influenced by concomitant steroid therapy.

5. A study correlating anticholinergic side-effects of the drug disopyramide with unbound plasma concentration was undertaken in conjunction with the SCGH Pharmacy Department.

6. The pharmacokinetics and cardiovascular effects of ranitidine have been investigated in critically ill patients in the SCGH Intensive Care Unit.

Research Publications

1. Nation, R.L., Hackett, L.P., & Dusci, L.J. (1983). Uptake of clonazepam by plastic intravenous infusion bags and administration sets. American Journal of Hospital Pharmacy, 40, 1692-3.

2. David, B.M., Tjokrosetio, R. & Ilett, K.F. (1983). Plasma protein binding of disopyramide by equilibrium dialysis and ultrafiltration. Therapeutic Drug Monitoring, 5, 81-86.

3. David, B.M. Ilett, K.F. Whitford, E.G. & Stenhouse, N.S. (1983). Prolonged variability in plasma protein binding of disopyramide after acute myocardial infarction. British Journal of Clinical Pharmacology. 15, 435-441.

4. Ilett, K.F., Tjokrosetio, R. & Benzie, J. (1983). Correlation of disopyramide and N-desalkyldisopyramide plasma levels with anticholinergic side-effects. Australian Journal of Hospital Pharmacy, 13, 142-145.

5. Ilett, K.F., Nation, R.L., Silbert B. & Oh, T.E. (1983). Pharmacokinetic optimization of aminophylline infusions in critically ill patients. Anaesthesia and Intensive Care 11, 220-227.

6. Jacobs, S., Pullan, P.T., Potter, J.M. & Shenfield, G.M. (1983). Adrenal suppression following extradural steroids. Anaesthesia 38, 953-956.

7. Paterson, J.W., Yellin, R.H. & Tarala, R.A. (1983). Evaluation of ketotifen (HC20-511) in bronchial asthma. European Journal of Clinical Pharmacology 25, 187-193.

9. COMBINED CLINICAL HAEMATOLOGY SERVICE (TABLE V)

Organization of the Service

A full 24 hour daily service is provided and during the year staff rosters have been modified so that one technologist is now on afternoon and evening shift as well as the staff appointed for "out-of-hours" work-load.

Doctor F. Cordingley left to become Haematology Registrar at Fremantle Hospital and was replaced by Doctor R. Tampi as Registrar in January.

Mr. B. Zekulich has been seconded to Health Computing Services for training and introduction of computerization in the laboratories and a temporary level I technologist appointment has been made during his secondment. During the year the level I technologist position which was previously held vacant was filled.

Accommodation

At the end of July, Haematology Laboratories were relocated in new definitive accommodation in 'J' Block, providing more spacious and pleasant working facilities. Through the hard work and co-operation of staff in the Department it was possible to provide continuous service during the difficult change-over period. A number of minor modifications to the new laboratories have been necessary since moving and changes are not yet completed. The closer association with other diagnostic laboratories is of considerable value.

Work-load

The routine work-load of the Department continues to increase as shown in Table V. Specimens received from the Sir Charles Gairdner Hospital were 77,299, a 19% increase on 1982 and probably attributable to the extra beds in 'G' Block which came into operation in 1982. There was a smaller increase in outpatient specimens from the S.C.G.H.

Because Canadian Work Unit values were reassigned for a number of tests in July 1982, resulting in an approximate 19% decrease in assigned work unit values, the actual increase in work-load above the level for 1982 is greater than the percentage increase shown, though this cannot be exactly quantitated. This effect will not apply in comparing future statistics with 1983 figures. In a high proportion of cases, multiple tests are done on individual samples received.

The main source of work is from the Sir Charles Gairdner Hospital.

The increase in work-load from S.C.G.H. reflects the increase in acute admissions and elective surgery since the full deployment of 'G' Block. This has also been relevant to the amount of "out-of-hours" work (including Saturday mornings), most of which originates from S.C.G.H., as shown in the following table for the year.

	Samples Received	Tests Performed	Work-load (Canadian Work Units)
"Out-of-hours" activity	24,042	65,729	621,504
Total Laboratory activity	101,181	302,149	2,827,462
% "Out-of-hours"	23.8%	21.8%	22%

It is evident that there is a significant burden on "out-of-hours" staff and that further increases in the "out-of-hours" work-load could only be accommodated by increasing the staff rostered for "out-of-hours" duty. The introduction of Medicare could result in a significant further increase in the work-load for the laboratory.

There has been a progressive increase in blood grouping and crossmatching during the year, resulting in approximately 50% increased work-load for this section over the year. Growth in other sections of the laboratories has been at a more steady rate.

New tests introduced during the year include nephelometric determination of several plasma coagulation factor proteins (factor VIII, Alpha 2 macroglobulin anti thrombin III, plasminogen) and immunological determination of fibrinogen. This not only enables relatively rapid availability of results for these tests, but also allows for identification of the presence of abnormal forms of these proteins (though such conditions are rare). After a thorough review of the radio-isotopic technique for estimation of vitamin B_{12}, a change has been made from use of commercial kits to an "in-house" method which has proved reliable and has resulted in substantial cost savings.

Equipment

Reporting of results to country laboratories and other centres by telexing has been facilitated by direct linkage of the ECS Computer to the telex system. The other major change has been the introduction of computerization in the routine laboratory in November with linkage to the HCS Cyber C. After initial problems, the system has been of benefit in answering phone enquiries for results and reducing filing of paperwork. There has been some dissatisfaction with the relatively slow response times encountered, particularly during busy periods. Further development of systems to extend computerization to all sections of the Department are being undertaken.

Attendances at Conferences

During the year Doctor D. Kennett attended the Combined Annual Scientific meetings of the Haematology Society of Australia and the Royal College of Pathologists in Australia (Melbourne); Dr. J. Raven went to the 7th meeting of the European-African of the International Society of Haematology (Barcelona) and Dr. H.J. Woodliff to the Combined Meeting of the Royal Australasian College of Physicians and the Australian Academy of Medicine (Singapore).

Publications

P.F. Como, D. Kennett, T. Wilkinson and H. Kronenberg : A new haemoglobin with high oxygen affinity - Hb Bunbury Haemoglobin Vol. 7 p. 413-422 1983.

10. COMBINED CLINICAL IMMUNOLOGY SERVICE

Quality Control

During 1983 this Department continued to pioneer many aspects of standardisation and quality control within Clinical Immunology. In particular emphasis has been placed on Autoantibodies detected by immunofluorescence and Rheumatoid Factor. This programme involves laboratories throughout Australia and the South East region. The results of this programme will be reported at the 5th Annual South East Asia and Pacific Area League (SEAPAL) against Rheumatism Conference to be held in Bangkok in January 1984.

The 9th International Histocompatability Testing Workshop

The 9th International Histocompatability Testing Workshop and Conference will be held in Munich and Vienna in May 1984. As part of the 9th Workshop this Department examined sixteen families which included a prepositis suffering from diseases such as Rheumatoid Arthritis, Complement Deficiency, Melanoma and drug induced Myasthenia Gravis. In addition C4 allotyping was performed. This Department is now recognised as a world reference laboratory for C4 allotyping and as such screened over five hundred samples from throughout the Australasian region. All these data have been matched up with the family pedigree and after further analysis will be reported at the Munich conference in May, 1984.

Computerization

The "Beckman Auto ICS" has recently been linked via a HP 98 45 mini computer to the Cyber C which will allow data to be acquired from the machine, be stored on the HP98 45 and when reviewed be transferred automatically to the Cyber after consulting the relevant standards and controls. This system will be adapted to the "in house" computerisation which is expected during 1984.

Work-load

The work-load continues to grow at an alarming rate. Staff levels are constant but the work-load now exceeds the maximum that can be adequately covered by each staff member. Once again the Department has continued its policy of discouraging tests which have been shown to have little clinical value or substitute screening tests where applicable but despite these measures work-load continues to increase.

Publications

During 1983 72 publications have gone to press in journals or have been presented as abstracts to National or International Scientific meetings. Many of the publications relate to immunogenetics and in particular to Rheumatoid Arthritis, 21-Hydroxylase Deficiency, Myasthenia Gravis, Systemic Lupus Erythematosus and Immunodeficiency.

11. COMBINED ANATOMICAL PATHOLOGY SERVICE (TABLE VII A & VII B)

1983 was notable in that it saw further decentralisation of histopathology services, and improvements of many kinds in communications with the Branch Laboratory Services and doctors requesting the laboratory's services.

In April 1983 the Osborne Park Hospital Branch Laboratory commenced processing and reporting of biopsies from Wanneroo and Osborne Park Hospitals. This facility had required extensions to the laboratory before it could be undertaken. Dr. A. Gaman, clinical pathologist, commenced full-time work at Osborne Park Hospital laboratories and a technologist with experience in histopathological techniques was seconded to the staff. A part-time typist was seconded to assist with production of reports.

Dr. K. Mitchell from the Central Laboratories commenced visiting Geraldton on a regular basis fortnightly. During his visits he carried out frozen sections and also did aspiration cytology in conjunction with the radiologists and surgeons there.

Changes were also introduced centrally so as to try and speed up the despatch of reports. A rapid tissue processing service was introduced whereby specimens from country laboratories received overnight could be processed during the day and a pathology report prepared for telexing the same night.

Also a much closer liaison developed between the Hospital and University Pathology Services and the State Health Laboratory Services during the course of the year. There was interchange of scientific staff and a greater sharing of facilities and resources.

Work-load

As the Branch Laboratories have become more active there appears to have been a decline in the work carried out in the Central Laboratories. Overall there has been a general increase in the amount of histopathology performed by the State Health Laboratory Services throughout the State, and a decline in the number of autopsies (Table VII B).

Table VII A shows that there has been an increase of more than 25% in the number of cases from the Sir Charles Gairdner Hospital and a slight reduction in the work received by the Central Laboratories of the State Health Laboratory Services. The increase may be at least partly accounted for by the opening of 'G' Block, with an increased number of surgical beds, in the Sir Charles Gairdner Hospital. The decline is due to decentralisation of histopathology work within the State Health Laboratory Services.

Accommodation

The State Health Laboratory Services moved from 'K' Block to more spacious quarters in 'J' Block in July. A new laboratory for performance of resinembedding of sections and the cutting of ultra-thin sections which would serve the whole Combined Anatomical Pathology Service was opened.

Computerisation

All country reports are produced on a word processor and the report is printed as hard copy to be signed by the pathologist responsible. A copy of the report is then transmitted electronically from word processor to a telex staging computer (CS 300) which stores the report and then automatically transmits it, by telex, to its destination at night. Eventually all reports will be produced on word processors and this will permit stripping and storage of patient data in a Data Base System.

Staff

Dr. L.R. Finlay-Jones commenced as a sessional pathologist in January 1983.

Dr. V. Caruso, pathologist, resigned on June 1983.

Dr. K. Williams, pathologist, assumed full-time duties in August 1983.

Dr. K. Mitchell was appointed as pathologist at the beginning of the year and resigned in November.

Dr. G. Cadden commenced as a registrar in Forensic Pathology in July 1983.

Mr. R. Davies, a senior technologist from Plymouth, United Kingdom, commenced duties in February 1983 as a Level 3 technologist. He resigned within a few days of taking up the appointment and Mr. K. Cole from the Hospital and University Pathology Services was appointed to this position for twelve months from September.

Visitors

Dr. M. Bamford from Darwin visited the Department whilst he was en route to South Africa.

Publications

Glancy, R.J., Gaman, A.J. and Rippey, J.J. (1983) : Polyps and papillary lesions of the prostatic urethra. Pathology, 15, 153-157.

Leibowitz, M.R., Rippey, J.J., Bezwoda, W.R. and Carman, H.A. (1983): : Unusual aspects of febrile neutrophilic dermatosis (Sweet's syndrome). S.Afr.Med.J., 62, 375-378.

12. COMBINED CYTOLOGY SERVICES (TABLE VII C)

The year saw the transfer of the laboratory administration staff and senior Medical and Technology staff of the unit to 'J' Block. The transition occurred smoothly, and with the anticipated relocation of the Cytology Screening room and the specimen preparation room nearer to office and senior staff, the efficiency of work flow as well as staff conditions should be greatly enhanced.

There was an increase in all aspects of the work of the unit, particularly in the labour-intense area of fine needle aspiration which increased 40% over 1982. This facet of Cytology requires the greatest input from both Medical and Technology staff and will continue to grow. An increase in more clinically orientated parts of the service highlights the need for senior staff with a strong commitment to the unit and for them to be constantly available to provide a consultative service.

Senior supervisory and reporting duties continued to be provided mainly by the hospital and University staff; these duties have increased in part due to the greater participation of Registrars of the Sir Charles Gairdner Hospital and hence a need to supervise them in the day to day work of the Department.

Staff

At present the Cytology Unit has a total of 17 staff; thirteen are full-time employees and 4 staff share two positions on a half time basis.

Administration

The telexing of Cytology reports to country laboratories has continued successfully; signed reports on cytology cases with significant abnormality continue to be sent to requesting physicians.

Work-load

The number of cases examined during 1983 is listed in Table VII C. Work-load units calculated according to the guidelines of the Canadian Work-load Recording System are included. The statistics show an overall increase in work-load from SHLS, hospital and University sources.

There has been a significant increase in the number of specimens obtained by the fine needle aspiration technique.

Education and Awards

Dr. D. Whitaker, has been notified that his PhD thesis, entitled "The Mesothelium of the Rat and its response to Injury", has been accepted by the examining committee of the W.A. University. He will be formally admitted to the degree early in 1984.

Dr. D. Whitaker was elected to membership of the Committee on Cytotechnology convened by the International Academy of Cytology, and to the position of W.A. State Councillor, for the Australian Society of Cytology.

The Department has also a large commitment to organising the coming Australian Society of Cytology Meeting in 1984, in Perth.

Workshops/Conferences

Dr. D. Whitaker attended the International Congress of Cytology in Montreal, Canada. He presented a paper on the 'Cytology of Asbestos - induced Mesothelioma in rats'. He was able to visit several internationally renowned cytopathologists, Dr. T. Bonfiglio of the Rochester Medical Centre and Professor W. Frable of the Virginia Commonwealth University.

Dr. Sterrett attended the annual meeting of the Australian society of Cytology and the Royal College of Pathologists of Australasia in Melbourne, in October. While in Melbourne, he visited Dr. Michael Drake of the Victorian Gynaecological Cytology Service and was able to discuss cytotechnology education and areas of current interest especially in gynaecological cytology. Dr. Sterrett visited Adelaide in May and worked with Dr. Svante Orell of Flinders Medical Centre on a manual and atlas of Fine Needle Aspiration Cytology, a collaborative effort between the Flinders University Pathology Department and the Combined Cytology Services at Q.E. II Medical Centre.

At the Annual General Meeting of the W.A. Branch of the Australian Society of Cytology, Mr. V. Williams presented the results of clinical and histopathological follow-up of a series of Pap. smears seen in the Combined Cytology Unit over a one year period. The results compared favourably with published overseas series, in terms of accuracy. At the same meeting, Dr. Sterrett presented a review of current controversies and problems in the interpretation of Pap. smears.

Mr. V. Williams, attended the Medical Laboratory Science Symposium held at Mandurah in June, 1983 and presented a paper on the Cytology of Human Papilloma Virus infection.

Visitors

Dr. S. Orell visited the Department on two occasions in April and July, for a week at a time, and gave valuable advice in several areas of fine needle aspiration cytology. Dr. Les Bousfield of the Westmead Medical Centre Cytology Department visited the unit in October. He conducted a valuable tutorial for staff members on Adenocarcinoma of the cervix and its precursors.

Research and Development

Dr. D. Whitaker, continued active collaboration with the Department of Endocrinology in research into male infertility, as well as pursuing his interests in the properties of the mesothelium. His co-operative study with Burroughs Wellcome Company and Doctors Canti and Randell, concerning the value of immunoperoxidase staining in effusions, continued.

Dr. Sterrett, continued his work with Professor Papadimitriou on the measurement of DNA levels in breast cancer cells.

Publications

The major publications by the unit for 1983 have been the PhD thesis submitted by Dr. Whitaker, and the manual and atlas of Fine Needle Aspiration Cytology. The latter project was carried out under the direction and editorship of Professor M.N.-I Walters, as a collaborative effort between The Flinders Medical Centre Pathology Department and the Combined Cytology Services and University of W.A. Pathology Department. Dr. Svante Orell of Flinders, Dr. Sterrett, Dr. D. Whitaker and Professor Walters are co-authors. Hard copies are expected to be produced by late 1984, or early 1985.

Articles

Ingram, D.M., Sterrett, G.F., Sheiner, H.T., Shilkin, K.B. : Fine needle aspiration cytology in the management of breast disease. M.J.A., 2:170-173, 1983.

Ingram, D.M., Sterrett, G.F., Sheiner, H.T., Shilkin, K.B. : Fine needle aspiration cytology in the management of breast disease. (Letter to the editor) M.J.A. 2:479-480, 1983.

Knesevic, W., Fisher, A., Sterrett, G.F., Stokes, B.A.R. : Cysticercosis of the fourth ventricle. M.J.A. 2:670-671, 1983.

Musk, W.W., Baker, J. and Whitaker, D. : Sputum Asbestos Bodies and Radiographic changes in Residents of Wittenoom, Western Australia. Community Health Studies 17, 19-23 (1982)

Sterrett, G.F., Whitaker, D., Shilkin, K.B., Walters, M.N-I. : The fine needle aspiration cytology of mediastinal lesions. Cancer, 51:127-135, 1983.

Sterrett, G.F., Whitaker, D., Shilkin, K.B., Walters, M.N-I. : Fine needle aspiration biopsy: is it useful for mediastinal masses? (Abstract). Modern Medicine of Canada, 38:1257, 1983.

Theses

Whitaker, D. : The Mesothelium of the rat and its response to injury. PhD. Thesis, University of Western Australia, 1983.

13. FORENSIC SERVICES

Forensic Pathology

There was a 10% decrease in the number of autopsies carried out in this Department during the year. No explanation for this change can readily be given.

CORONER'S AUTOPSY STATISTICS 1983

Cause of Death	1983	1982	% Change
Sudden Death	889	982	- 9.5
Suicide	146	160	- 8.8
Homicide	26	28	- 7.1
Traffic Accident	148	175	- 15.4
Industrial Accident	11	10	- 10.0
TOTAL	1,220	1,355	- 10.0

The members of the staff continued to teach medical and dental students as well as members of the police, ambulance drivers and staff of the Fire Service.

Accommodation

The Forensic Pathology Section moved into 'J' Block during the course of the year being brought into closer propinquity to Histopathology, Forensic Biology and the Mortuary.

Staff

During the year Dr. W. Laurie retired from his sessional appointment. Dr. Laurie had retired as Director of the State Health Laboratory Services in 1975 but had continued to participate in the routine service of Forensic Pathology as well as to do further research into cardiac pathology.

Dr. Gerard Cadden was appointed as registrar in Forensic Pathology.

Conferences

Dr. Pocock attended the First Asian Pacific Congress of Legal Medicine and Forensic Sciences in Singapore. At this meeting an International Association of Forensic Science Societies was formed from the nations in Africa, Asia and Australasia to be known as the Indo-Pacific Association of Medicine, Science and Law. Professor Chao (Singapore) was elected President, Judge Carmi (Israel) vice President and Dr. Pocock was elected Secretary-General of the organisation. Australia - through its

National Forensic Science Society - is a founder member. Objectives are the futherance of forensic science and forensic medicine by symposia, conferences and the exchange of information, methodology and personnel between nations.

Following the meeting, Dr. Pocock attended the Eighth Australasian International Forensic Science Symposium held in Perth, having been co-secretary of the organising committee since 1981. During this most successful conference, Dr. Pocock was elected Vice President of the Australian Forensic Science Society.

Dr. Hilton read a paper on the Sudden Infant Death Syndrome at this Symposium.

Dr. Hainsworth acted as Chairman for two sessions of the Symposium.

Forensic Biology

There was an increase of 9% in the number of CIB cases received this year, with a similar increase in the total number of items examined. The number of meat and fish samples submitted for species identification showed a slight decrease compared to the 1982 figures.

Total CIB cases	256
Miscellaneous cases	40
Total Cases	296
Total items received	3,152
Meat samples	271
Fish samples	34
Alcohol kits prepared	533

In July 1983 the section moved from the Swanbourne Hospital to newly completed accommodation on the ground floor of 'J' Block at the Queen Elizabeth II Medical Centre.

Photographic equipment, including a camera and stand was acquired late in the year. Blood grouping results will be recorded using this equipment. Items received from the CIB that are of particular significance will be photographed as part of the routine examination testing and recording procedure.

Staff levels were maintained although there was a delay of four months in replacing a laboratory assistant.

Isoelectric focusing techniques to test for various enzymes were introduced to supplement the serological methods of species identification. In particular, they were used to differentiate between beef and buffalo and between sheep and goat meat samples.

During the year a number of officers from the Polic Scientific Branch spent two days each working in this section. The main purpose of this ongoing programme has been to familiarise the officers with the laboratory requirements for collecting samples at the scene of a crime.

Two new clients, the Australian Army and the State Tender Board, submitted samples of fish for species identification. The testing was related to the bulk purchasing of fish by the two client departments.

Dr. Benjamin W. Grunbaum from the University of California in the United States of America visited the laboratory whilst in Perth for the 8th Australian International Forensic Science Symposium. Dr. Grunbaum discussed various systems of bloodstain typing by electrophoresis. The equipment used for bloodstain typing was developed by Dr. Grunbaum.

Conferences

Mr. N. Sivewright, Mr. A.M. Feeney, Mr. F. Vlatko-Rulo and Mr. A. Bagdonavicius attended the Australian International Forensic Science Symposium in Perth, W.A. September 26-30th 1983.

Publications

Sivewright, N., Feeney, A.M., Bagdonavicius A.	: "Fish species identification by Polyacrylamide Gel Isoelectric Focusing in Western Australia" West Australian Health Surveyor Quarterly, Perth. Vol. 5, No. 3, Winter 1983.

14. CYTOGENETICS UNITS

Work-load

2,061 specimens were received. This represents a 10.1% increase over the previous year's work-load. 149 patients were referred for investigation of Fragile X chromosomes, this investigation being undertaken in the Research and Development laboratory.

Accommodation

In August the clinical laboratory moved into new accommodation in 'J' Block. The new facilities are of very high quality.

Equipment

No major items of equipment were acquired in 1982/83 but three elderly microscopes were partially upgraded by the purchase of replacement equipment.

Further upgrading of these microscopes will be undertaken in 1983/84 with the acquisition of two new high power oil immersion objectives.

Computerisation of cytogenetic records is in the planning stage.

Staff

Staffing consists of 3 technologists, 1 cytotechnician and 2½ laboratory assistants together with the pathologist, Dr. Mulcahy. Delays in the replacement of staff due to Government restrictions greatly disturbed the routine services of the laboratory. The staff are now working at maximum capacity and the work-load cannot be expanded without additional trained staff.

Research and Development

Clinical Laboratory

High resolution chromosome banding techniques have been more commonly employed during 1983. Their use must of necessity be limited, due to the amount of microscopy time required for each specimen. Cell synchronization techniques were frequently used and a start has been made on developing techniques for the study of chromosome material from chorionic villus biopsy.

Conferences attended

Human Genetics Society of Australasia Conference held in Perth, May 1983.

Dr. Mulcahy attended the following conferences during three weeks' study leave overseas:

> Eighth International Cytogenetics Conference held in Lubeck in September 1983.
>
> Seminar on First Trimester Diagnosis using Chorionic Villus Biopsy, held in London in October 1983.

Visitors

Mr. Chua Teck Seng - Department of Paediatrics, Faculty of Medicine, Singapore General Hospital, Singapore.

Ms. Solveig Weyrauch, Cytogenetics Unit, Oliver Latham Laboratory, Sydney.

Ms. Linda Yorston, Clinical Cytogenetics Unit, Edinburgh.

Mrs. Jean Cox (formerly) Cytogenetics Unit, Hobart, Tasmania.

Ms. Norma Hatcher, Cytogenetics Unit, New York Birth Defects Institute, New York, U.S.A.

Publications

Mulcahy, M.T., and Michael, C.A. : The utilization of Prenatal Cytogenetic Diagnosis in Western Australia. Aust.N.Z.J. Obstet.Gynaec. 1983; 23: 8-10.

Mulcahy, M.T., Watson, M., : Prenatal diagnosis of a double heterozygote for two reciprocal translocations of familial origin. Prenatal Diagnosis 1983; 3: 351-353.

Mulcahy, M.T., Dick, M., : Decrease in -glutamyltransferase activity in early amniotic fluid in foetal Trisomy 18 syndrome. Br.Med.J. 1983; 286: 144.

Mulcahy, M.T., : The effect of prenatal diagnosis on the incidence of Down syndrome in Western Australia. Aust. N.Z.J. Obstet.Gynaec. 1983; 23: 197-198.

CYTOGENETICS II

Cancer Cytogenetics

Cytogenetic studies on peritoneal washings and ascitic fluids from patients at King Edward Memorial Hospital were continued during 1983. 155 samples were examined. The work continued to be done in parallel with cytological studies conducted by the laboratory at K.E.M.H.

Fragile X Blood Tests

130 blood samples from patients were cultured and the chromosomes examined for the expression of the fragile site on the distal end of the long arms of chromosome X. Four new cases exhibiting this phenomenon were detected, and one probable carrier.

Other Cytogenetic Studies

Processing and karyotyping of chromosomes were done:

(a) on 5 transformed cell lines and two different animal cell lines at the request of a staff member of the Virology Section, Murdoch University; and

(b) on 10 neurological tumour cell lines at the request of a staff member of the Neuropathology Department, Royal Perth Hospital.[2]

A poster entitled "A New Application for Cancer Cytogenetics", based on the cytogenetic work done on K.E.M.H. patients mentioned above, was presented at the annual meeting of the Human Genetics Society of Australasia.

TABLE I A

STATE HEALTH CENTRAL LABORATORIES (INCLUDING COMBINED LABORATORIES)

SPECIMENS ANALYSED AND AUTOPSIES PERFORMED

1983

	1983	1982	% Change
Clinical Bacteriology	61,850	55,287	+ 11.9
Virology	52,715	49,183	+ 7.2
Mycology	11,943	10,456	+ 14.2
Mycobacteriology	6,820	6,973	- 2.2
Sexually Transmitted Diseases	43,930	43,494	+ 1.0
Clinical Enteric Section	12,140	12,321	- 1.5
Parasitology	11,546	11,690	- 1.2
Foods	11,150	10,359	+ 7.6
Waters	30,093	27,647	+ 8.8
Environmental	16,390	18,847	- 13.1
Phage Typing	5,186	5,326	- 2.6
Cross Infection	18,630	14,006	+ 33.0
Serology	49,447	49,423	+ 0.1
TOTAL MICROBIOLOGY:	331,840	315,012	+ 5.3
Biochemistry (including Radioisotopes)	202,673	182,260	+ 11.2
Toxicology	23,579	20,665	+ 14.1
Haematology	101,181	88,948	+ 13.8
Cytogenetics	2,061	1,872	+ 10.1
Histopathology	16,139	16,792	- 3.9
Cytology	28,773	27,300	+ 5.4
Autopsies	1,220	1,355	- 10.0
TOTAL PATHOLOGY:	375,626	339,192	+ 10.7
GRAND TOTAL:	707,466	654,204	+ 8.2

TABLE I B

STATISTICS - BRANCH LABORATORIES

SPECIMENS ANALYSED

1983

	1983	1982	% Change
Albany	17,529	19,584	- 10.5
Armadale	6,491	5,588	+ 16.2
Broome	5,354	5,506	- 2.8
Bentley	16,904	14,253	+ 18.6
Bunbury	18,577	22,153	- 16.1
Busselton	8,565	8,776	- 2.4
Carnarvon	8,808	8,437	+ 4.4
Collie	5,046	5,265	- 4.2
Karratha/Nickol Bay	7,160	6,140	+ 16.6
Derby	20,193	15,655	+ 29.0
Esperance	5,931	5,562	+ 6.6
Geraldton	20,576	21,086	- 2.4
Kalgoorlie	22,237	10,599 (6 months only)	+ 109.8
Katanning	4,396	4,551	- 3.4
Kalamunda	6,690	6,602	+ 1.3
Kununurra	*	*	*
Manjimup	9,829	10,588	- 7.2
Merredin	8,692	8,321	+ 4.5
Narrogin	10,654	11,184	- 4.7
Newman	340	584	- 41.8
Northam	8,926	9,287	- 3.9
Osborne Park	16,804	17,769	- 5.4
Pinjarra	9,718	10,375	- 6.3
Rockingham	14,451	12,108	+ 19.4
Port Hedland	16,842	18,218	- 7.6
Swan Districts	11,693	9,896	+ 18.2
Tom Price	3,303	3,417	- 3.3
Wyndham	8,058	6,738	+ 19.6
Wanneroo	4,368	3,894	+ 12.2
TOTAL:	298,135	282,136	+ 5.7

* Included with Wyndham

TABLE II A

COMBINED MICROBIOLOGY SERVICE

WORK STATISTICS - 1983

SPECIMENS				CANADIAN WORK UNITS	
		Total	% SCGH	Total	% SCGH
Clinical Microbiology	S.C.G.H.	45,294	73	1,505,629	79
	S.H.L.S.	16,556		399,267	
	TOTAL:	61,850		1,904,896	
Infection Control	S.C.G.H.	11,524	62	148,785	56
	S.H.L.S.	7,106		116,613	
	TOTAL:	18,630		265,398	
Mycobacteria	S.C.G.H.	2,614	38	130,050	36
	S.H.L.S.	4,206		230,241	
	TOTAL:	6,820		360,291	
Mycology	S.C.G.H.	N/A	0	N/A	0
	S.H.L.S.	N/A		N/A	
	TOTAL:	11,943		765,122	
Phage Typing	S.C.G.H.	N/A	0	N/A	0
	S.H.L.S.	N/A		N/A	
	TOTAL:	5,186		92,751	
Public Health:					
Clinical Enteric		12,140		771,813	
Environmental		16,390		0	
Foods		11,150		0	
Parasitology		11,546		231,300	
Waters		30,093		0	
	TOTAL:	81,319		1,003,113	
S.T.D. Laboratory		43,930		429,330	
Serology	S.C.G.H.	N/A	0	N/A	0
	S.H.L.S.	N/A		N/A	
	TOTAL:	49,447		674,001	
Virology	S.C.G.H.	4,126	8	N/A	0
	S.H.L.S.	48,589		N/A	
	TOTAL:	52,715		4,255,218	
TOTAL:		331,840		9,750,120	

TABLE II B

CLINICAL BACTERIOLOGY

SPECIMENS ANALYSED

1983

	1983	1982	% Change
Clinical Microbiology			
Queen Elizabeth II Medical Centre	45,294	40,382	+ 12.2
State Health Laboratory Services	16,556	14,905	+ 11.1
TOTAL:	61,850	55,287	+ 11.9
Infection Control			
Queen Elizabeth II Medical Centre	11,524	9,210	+ 25.1
State Health Laboratory Services	7,106	4,796	+ 48.2
TOTAL:	18,630	14,006	+ 33.0

TABLE II C

MYCOBACTERIA - SPECIMENS 1983

SOURCES	1983	1982	% Change
Queen Elizabeth II Medical Centre (S.C.G.H.)	2,577	2,395	+ 7.6
Perth Chest Clinic	684	533	+ 28.3
Commonwealth Health Services	531	496	+ 7.1
Others	2,623	2,850	- 8.0
Referrals	378	699	- 45.9
TOTAL:	6,793	6,973	- 2.6
Positive Specimens - Atypical mycobacteria	437	385	+ 13.5
Positive Specimens - M.tuberculosis/M. bovis	225	227	- 0.9
Positive Smears - M. leprae	14	12	+ 16.7
TOTAL:	676	624	+ 8.3

TABLE II D

MYCOLOGY - SPECIMENS

1983

	1983	1982	% Change
Total Specimens	11,943	10,456	+ 14.2
Total Specimens Positive %	35.5	33	-
Total Skin Scrapings	6,583	6,346	+ 3.7

TABLE II E

PUBLIC HEALTH ENTERIC DISEASES UNIT - SPECIMENS 1983

LABORATORY SECTIONS	SPECIMENS	STATE PHO/SHLS	COMMON-WEALTH	LOCAL HEALTH	MWSSO	CTWS	PUBLIC HOSPITAL	PRIVATE SERVICE	OTHER	POSITIVE FOR PATHOGENS	TOTALS 1983	TOTALS 1982
CLINICAL ENTERIC BACTERIOLOGY SECTION	Human faeces	9,639	1,196	716			3	125		1,460	11,679	11,783
	Cultures referred (Human)	312	7				53	89		401	461	538
	TOTAL:	9,951	1,203	716			56	214		1,861	12,140	12,321
PARASITOLOGY SECTION	Faeces	11,526								1,391	11,526	11,658
	Skin scrapings	10								1	10	15
	Parasites for identif.	10								7	10	17
	TOTAL:	11,546								1,399	11,546	11,690
FOOD HYGIENE SECTION	Foodstuffs	8,377	594	1,969					210	1,000	11,150	10,359
	TOTAL:	8,377	594	1,969					210	1,000	11,150	10,359
WATERS SECTION	Water supplies (distrib.)	487	2,170	4,513	8,904	3,799				772	19,873	19,647
	Bores and wells	15	67	526	532	73				166	1,213	1,477
	Reservoirs and tanks	25	7	287	45	246				23	610	676
	Swimming pools	356	201	7,837		3				854	8,397	5,847
	TOTAL:	883	2,445	13,163	9,481	4,121				1,815	30,093	27,647
ENVIRONMENTAL SECTION	Sewerage water & drains	768	86	366	1,197	32		13		431	2,462	2,914
	Abattoir & meat process	984	1	103						412	1,088	940
	Natural waters & soil	1,262		1,754	337	8			6	144	3,367	4,397
	Water catchment & supply	55		22	3,186					389	3,263	2,980
	Animals	5,159		445	82			15	204	971	5,905	7,068
	Cultures referred (Environment)	70						231	4	273	305	548
	TOTAL:	8,298	87	2,690	4,802	40		259	214	2,620	16,390	18,847
	GRAND TOTAL:	39,055	4,329	18,538	14,283	4,161	56	473	424	8,695	81,319	80,864
	1982 for comparison:	39,924	4,074	16,240	14,933	4,161	101	751	2,217	9,924	80,864	

TABLE II F

SERОLOGY - SPECIMENS

1983

TEST CATEGORY	1983	1982	% Change
Treponemal Serology	40,357	40,355	+ 0.0
Bacterial Serology	3,970	3,050	+ 30.1
Viral, Rickettsial, Helminthic & Protozoal	1,708	2,742	- 37.7
Hormone Serology	314	515	- 39.0
Others	3,098	2,761	+ 12.2
TOTAL:	49,447	49,423	+ 0.1

NOTIFIABLE DISEASE CASES	1983	1982
Syphilis	339	315
Leptospirosis	29	19
Brucella	2	4
Hydatid	1	2
Filaria	-	2
Typhus	-	1
Malaria	-	-
Amoebiasis	3	1
Schistosomiasis	-	1

TABLE II G

SEXUALLY TRANSMITTED DISEASES

SPECIMENS - 1983

	1983	1982	% Change
Specimens for N. gonorrhoeae	41,696	40,621	+ 2.6
Number Positive	859	770	+ 11.6
% Positive	2.1	1.9	
Specimens for Syphilis (D.G.I.)	391	579	- 32.5
Number Positive	18	24	- 25.0
% Positive	4.6	4.1	
Other	1,843	2,294	- 19.7
TOTAL:	43,930	43,494	+ 1.0

TABLE II H

VIROLOGY - SPECIMENS 1983

SPECIMENS RECEIVED	S.C.G.H.	C'WEALTH	OTHERS	TOTAL
Alimentary Tract	56	6	1,510	1,572
C.V.S.	1	-	13	14
C.N.S.	73	31	844	948
Respiratory Tract	171	18	1,944	2,133
Skin	106	6	2,219	2,331
Eye	51	8	578	637
Urogenital System	1,127	61	20,156	21,344
Other	23	9	405	437
Blood/Serum	2,518	913	19,868	23,299
TOTAL SPECIMENS:	4,126	1,052	47,537	52,715

TABLE II J

VIROLOGY - TESTS 1983

TESTS	CANADIAN WORK UNITS
Electron Microscopy	20,592
Virus Isolation	1,167,480
Chlamydia Isolation	1,611,400
Rubella antibody	365,273
Ross River virus antibody (HI)	38,115
MVE/Dengue antibody (HI)	8,750
Virus serology (CFT)	447,360
Neutralization tests	37,200
Legionella ELISA	25,488
Other FA	4,864
EBV FA/PB + IgM	190,408
CMV ELISA (IgM)	32,448
Hepatitis A antibody	69,125
Hepatitis B (HB_sAg) PHA	6,494
Hepatitis B (HB_sAg) EIA)	138,856
Hepatitis Anti-HB_s	55,840
Hepatitis Anti-HB_c	35,525
TOTAL WORK UNITS:	4,255,218

TABLE III

COMBINED CLINICAL BIOCHEMISTRY

CANADIAN WORK UNITS 1983

	1983	1982	% Change
Sir Charles Gairdner Hospital			
In-Patients	1,632,542	1,399,764	+ 16.6
Out-Patients	682,858	622,688	+ 9.7
SUB TOTAL S.C.G.H. :	2,315,400	2,022,452	+ 14.5
State Health Laboratory Services	1,075,344	1,023,733	+ 5.0
Commonwealth Instrumentalities	17,745	78,123	– 77.3
Surveys, Research etc.	159,754	85,586	+ 86.7
TOTAL REQUESTED:	3,568,243	3,209,894	+ 11.2
Standards, Quality Control etc.	1,013,463	761,025	+ 33.2
Work Units Technical	4,581,706	3,970,919	+ 15.4
*Administration	–	185,352	–
Development	410,592	205,296	+ 100.0
TOTAL:	4,992,298	4,361,567	+ 14.5

* NOTE: Allowance for Administration discontinued.

TABLE IV

COMBINED CLINICAL PHARMACOLOGY & TOXICOLOGY

SPECIMENS 1983

	1983	1982	% Change
CLINICAL			
Drugs	20,864	18,051	+ 15.6
Alcohol	346	265	+ 30.6
Pesticides	901	704	+ 28.0
Miscellaneous	717	746	- 3.9
FORENSIC			
Drugs	362	342	+ 5.8
Alcohol	389	557	- 30.2
TOTAL:	23,579	20,665	+ 14.1
Canadian Work Units:	992,319	960,854	+ 3.2

TABLE V

COMBINED CLINICAL HAEMATOLOGY

STATISTICS 1983

	1983		1982		% Change	
	Specimens	C.W.U.	Specimens	C.W.U.	Specimens	C.W.U.
Sir Charles Gairdner Hospital (S.C.G.H.)						
In-patients	53,303	1,488,868	43,645	1,266,625	+ 22.1	+ 17.5
Out-patients	23,996	359,072	21,276	361,402	+ 12.8	- 0.6
SUB TOTAL S.C.G.H. :	77,299	1,847,940	64,921	1,628,027	+ 19.1	+ 13.5
State Health Laboratory Services S.H.L.S.	18,763	461,274	17,682	474,531	+ 6.1	- 2.8
S.H.L.S. Surveys	1,304	38,042	982	35,235	+ 32.8	+ 8.0
University of W.A.	475	5,717	367	6,127	+ 29.4	- 6.7
Other Sources	3,340	166,216	3,283	147,197	+ 1.7	+ 12.9
TOTAL REQUESTS :	101,181	2,519,189	87,235	2,291,117	+ 16.0	+ 10.0
Quality Control etc.		308,273		268,295		+ 14.9
TOTAL :	101,181	2,827,462	87,235	2,559,412	+ 16.0	+ 10.5

TABLE VI

COMBINED CLINICAL IMMUNOLOGY

CANADIAN WORK UNITS - STATISTICS 1983

	1983	1982	% Change
Requested	1,171,439	975,972 estimate	+ 20%
Quality Control etc.	278,851		
TOTAL	1,450,290		

TABLE VII A

COMBINED ANATOMICAL PATHOLOGY SERVICE

WORK-LOAD 1983

HISTOPATHOLOGY	CASES			C.W.U.		
	1983	1982	% Change	1983	1982	% Change
Hospital & University Pathology Services (S.C.G.H.)	8,068	6,366	+ 26.7	1,164,722	509,740	+ 128.5
State Health Laboratory Services	16,139	16,792	- 3.9	1,529,340	1,148,721	+ 33.1
TOTAL	24,207	23,158	+ 4.5	2,694,062	1,658,461	+ 62.4

TABLE VII B

HISTOPATHOLOGY & MORBID ANATOMY

STATE HEALTH LABORATORY SERVICES - SPECIMENS 1983

	1983	1982	% Change
Autopsies			
Central	1,212	1,355	- 10.6
Bunbury	76	76	0
Osborne Park	2	-	-
TOTAL AUTOPSIES:	1,290	1,431	- 9.8
Surgical Biopsies			
Central	16,139	16,792	- 3.9
Bunbury	3,729	3,622	+ 3.0
Osborne Park	2,091	-	-
TOTAL SURGICAL BIOPSIES:	21,959	20,414	+ 7.6
Blocks Cut (Autopsies)			
Central	20,541	20,597	- 0.3
Bunbury	746	858	- 13.1
Osborne Park	36 (approx)	-	-
TOTAL BLOCKS CUT (AUTOPSIES):	21,323	21,455	- 0.6
Blocks Cut (Biopsies)			
Central	37,317	41,140	- 9.3
Bunbury	8,235	7,574	+ 8.7
Osborne Park	6,369	-	-
TOTAL BLOCKS CUT (BIOPSIES):	51,921	48,714	+ 6.6
Frozen Sections *			
Metropolitan	275	368	- 25.3
Bunbury	38	41	- 7.3
Osborne Park	90	-	-
Geraldton	8	-	-
TOTAL FROZEN SECTIONS:	411	409	+ 0.5
Seminal Analyses	462	514	- 10.1

* 70 Frozen sections carried out at Swan Districts Hospital and Kalamunda Hospital not included in this total.

TABLE VII C

COMBINED CYTOLOGY SERVICE

WORK-LOAD 1983

CYTOLOGY	CASES			C.W.U.		
	1983	1982	% Change	1983	1982	% Change
Hospital & University Pathology Services (S.C.G.H.)	4,941	4,359	+ 13.4	385,313	-	-
State Health Laboratory Services	23,832	22,941	+ 3.9	808,778	-	-
TOTAL	28,773	27,300	+ 5.4	1,194,091		(+ 12.7 over 5 month period

Appendix XV

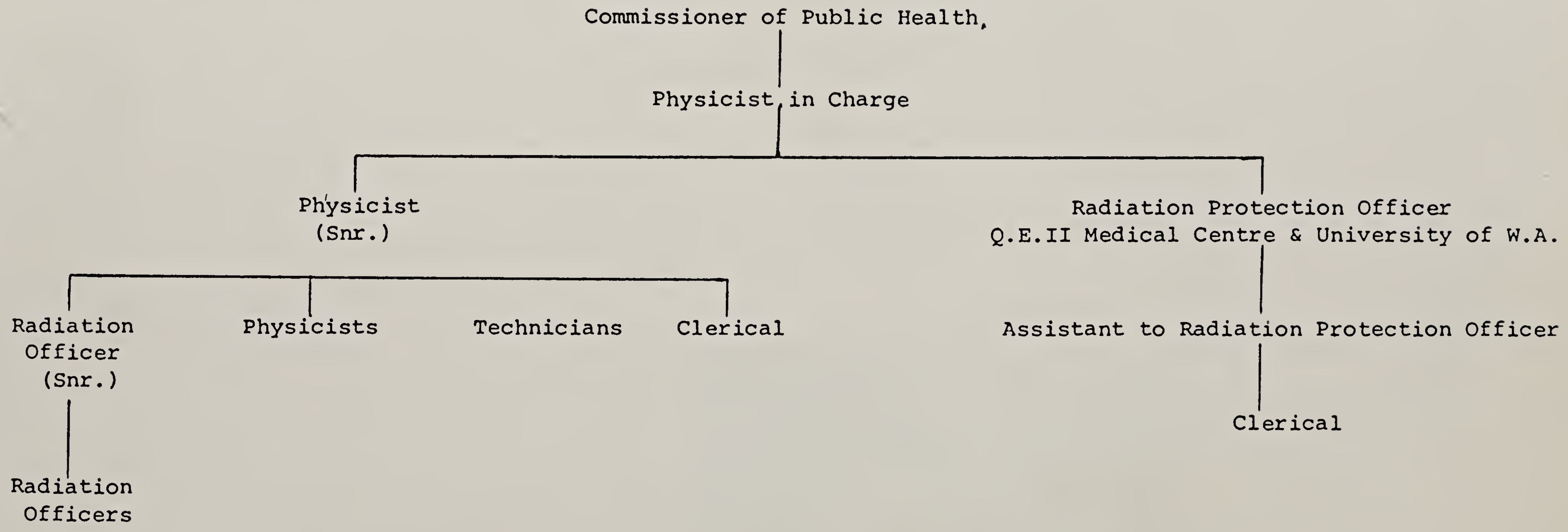
STATE X-RAY LABORATORY - PHYSICS DIVISION

B.E. King,
M.Sc., B.Sc.
Physicist in Charge

SENIOR STAFF

Physicist in Charge :
Mr. B.E. King
Physicist (Senior) :
Dr. B.M. Hartley
Radiation Protection Officer :
Mr. L.M. Davies
Radiation Officer (Senior) :
Mr. B.J. Cobb
Administrative Assistant :
Mr. A.R. Turner

STATE X-RAY LABORATORY, PHYSICS DIVISION - ORGANIZATION CHART


Commissioner of Public Health,
Physicist in Charge
Physicist (Snr.)
Radiation Protection Officer Q.E.II Medical Centre & University of W.A.
Radiation Officer (Snr.)
Physicists
Technicians
Clerical
Assistant to Radiation Protection Officer
Clerical
Radiation Officers

STATE X-RAY LABORATORY - PHYSICS DIVISION

INTRODUCTION

The Physics Division of the State X-Ray Laboratory is the branch of the Public Health Department which is concerned with radiation safety in the workplace and the population at large. The radiations of concern are ionising, including X-rays and those from radioactive substances, and non-ionising including microwaves, ultraviolet, visible and infra red radiation. All these may occur or be used in a manner which may be hazardous. Subject to proper safeguards the potential hazards can be contained.

The Division serves as the administrative arm of the Radiological Council, the statutory body appointed under the Radiation Safety Act. The Division administers a system of licencing and registration called for under the Act and through its programme of inspection, education and advice endeavours to ensure that unnecessary radiation exposure is avoided and that all exposure is kept as low as reasonably achievable. The work of the Radiological Council is described in a separate report to the Minister for Health. With the coming into effect of the Radiation Safety (General) Regulations in August 1983, there were major changes in the licencing and registration system, a large number of new licence applications being received. To assist with the processing of these, temporary clerical assistance was obtained.

RADIATION MONITORING

Measurement of radiation exposure of individuals and of radiation levels in the workplace and elsewhere is an essential part of radiation safety. It enables situations such as those where working procedures are unsatisfactory or where radiation levels are excessive to be detected and remedial action taken.

The Division provides a personal film badge radiation monitoring service for recording the dose of ionising radiation received by people using X-rays and radioactive substances. Over 20,000 monitoring films are assessed for radiation dose each year. This service has been available for over 20 years and with the exception of a few occupational groups, has recorded a continuing reduction in radiation exposure of radiation workers, most now receiving very low annual doses of ionising radiation. Statistics for use of the Film Badge Service are given below:

FILM BADGE RADIATION MONITORING SERVICE - 1983

USER GROUP	NO. OF EMPLOYEES	FILMS	PERSONS MONITORED**
Dentists	473	2700	*
G.P.'s	21	402	63
Chiropractors	36	318	53
Hospitals	129	5552	892
Radiologists	24	744	124
Veterinarians	99	2172	362
Industrial	79	4242	348
Laboratories	11	210	35
Universities	29 (Depts)	2346	391
Teaching	9 (Depts)	654	109
Misc.	17	714	119
TOTAL	927	20,054	2496

* Dental practices use area monitoring, one film per X-ray machine.

**Persons monitored on a regular basis. Additional persons are monitored intermittently.

The regulations require users of radiation producing substances and equipment to have available radiation measuring instruments. The careful use of these instruments is a valuable tool in achieving high standards of radiation protection but because of a tendency of the response of the instruments to change with time, regular calibration checks are needed. The Division provides a service for checking ionising radiation and microwave radiation measuring instruments and in 1983, 254 instruments were checked. For this purpose, the Division has a range of radioactive sources, X-ray and microwave equipment, together with appropriate measuring instruments. In addition, the Division calibrates superficial therapy X-ray equipment used in private practice and hospitals. Only two of these units were calibrated in 1983 leaving a backlog to be dealt with in 1984.

DIAGNOSTIC USE OF IONISING RADIATION

Surveys throughout the world have shown that radiological procedures make the largest contribution to man made exposure of the population to ionising radiation. Radiation protection authorities generally devote a major part of their resources to surveillance of diagnostic use of radiation in order to minimise radiation exposure of the population. The Physics Division is no exception in this regard and continues to have a major concern in this area. While the Division is confident that a reasonably high standard of radiation safety exists in the diagnostic use of ionising radiation, it is unable to carry out the necessary inspections to verify this as frequently as is desirable. It is worth pointing out that in recent years there has been a rapid increase in the number of diagnostic (including dental X-ray units) in Western Australia. In 1983 this number reached 1360.

In August 1983, the Radiation Safety (General) Regulations brought into one document the requirements for X-ray equipment and its operation which had previously been covered by licence conditions or general policy statements by the Radiological Council.

The work of the Division with respect to radiation doses from diagnostic radiological procedures and the minimisation of these doses would be greatly facilitated by the installation of medical X-ray equipment at the laboratory and the acquisition of a humanoid phantom for X-ray dosimetry. These items of equipment would also be of great value in the training of users of X-ray equipment.

RADIATION PROTECTION PLANNING

The Division provides advice to users of radiation equipment and to applicants in meeting the requirements of the Radiological Council and the legislation. This enables the premises, safety features, warning signs etc. to be planned to meet the legal requirements. Advice is primarily given to designers of diagnostic X-ray facilities and radioisotope laboratories.

FIELD WORK

The number of locations where radiation is used throughout the State approaches 1,000 and officers of the Division make periodic visits to these locations. The purpose of the visits is to inspect the facilities to ensure that they comply with the regulations and are used safely. The opportunity is also taken to give advice and instruction on safety matters. In recent years, staff availability has limited the frequency of these visits to less than ideal. Officers of the Division are appointed as "authorised officers" under the Radiation Safety Act and have the authority of the Radiological Council. One officer is engaged largely on visits to industrial locations where radiation is used. This has been particularly valuable in relation to industrial radiography where there is considerable potential for radiation exposure if workers do not follow the recommended safety procedures. 440 premises were visited during the year and 31 country trips made.

NON-IONISING RADIATION

Following a survey by the Australian Radiation Laboratory which reported excessive levels of radiation from radiofrequency welding equipment used in industry, the Division found similar equipment in Perth which leaked radiation in excess of the interim standard recommended by the N.H. & M.R.C. The measuring equipment for radiofrequency radiation needs to cover a wide frequency spectrum and no single piece of apparatus is suitable for the whole spectrum. The Division has some survey equipment but it lacks a Spectrum Analyser necessary to determine the frequency of the radiation concerned. This is important because the maximum permissible exposure levels are frequency dependent. Additional equipment is also necessary for surveillance of ultra violet sources and of high powered lasers used in medicine and industry.

MEASUREMENT OF RADIOACTIVITY

The Division is equipped with radioactivity measurement and analysing equipment for the evaluation of samples collected by its officers or submitted by industry. The radioactive content of samples of naturally occurring material can be quite complex and computer methods are used to enable the results of the analyses to be calculated quickly. Equipment for the measurement of radium in water has now been completed and is operational.

EDUCATION

Education of users of radiation is an important function of the Division. Although some radiation safety courses are now run by the Mt. Lawley Technical College, the Division's officers continue their involvement by lecturing at these courses. Courses given by the Division or in association with other organisations are shown below:

Radiation Safety - Radiation Gauges and Industrial Radiography (Mt. Lawley Technical College)	5 courses	72 participants
X-ray Operators - Country Hospitals (Hospital & Allied Services)	4 courses	55 participants
X-ray Operators - General Practice	1 course	12 participants
Unsealed radioisotopes - Radiation Safety	4 courses	81 participants
Mineral Sands - Radiation Safety	1 course	13 participants
Transport of Radioactive Substances	1 Workshop	9 participants

The Division's officers assist the Radiological Council's Chiropractic Examining Panel in conducting the Chiropractic X-ray Examination. 14 candidates were examined at the annual examination in July.

The Division conducts examinations on behalf of the Radiological Council to enable licence applicants and radiation safety officers who undertake a self study programme to meet the requirements of the Qualifications Regulations. 48 applicants were examined at 12 examinations in 1983.

Throughout the year, the Division's officers lecture on radiation safety topics to groups and as part of courses conducted by various educational bodies.

VISITS OF NUCLEAR POWERED WARSHIPS

13 US nuclear powered warships visited W.A. ports during 1983. One of these visited Albany, the remainder being berthed either at HMAS Stirling or Gage Roads off Fremantle. During each visit 4 officers of the Division were on call should an emergency arise. Monitoring of a routine nature is provided by personnel from the Australian Atomic Energy Commission.

MINING AND MILLING OF RADIOACTIVE SUBSTANCES

The Division's functions include an active involvement in radiation safety in the mining and processing of mineral sands, at uranium prospects where ore is being excavated, and in the assessment of proposals for future projects. Periodic visits have been made to mining and exploration areas and to areas where mineral sands tailings have been used as landfill. An officer of the Division is a member of the Commonwealth/State Consultative Committee on Nuclear Codes and is actively involved in the development of Codes and Guidelines primarily relating to uranium mining. He attended meetings of the Committee and its Expert Groups in Canberra on two occasions.

A Government appointed Committee of Inquiry into Radiation Safety in the Mineral Sands Industry began its work in September and the Division's officers assisted the Inquiry, two appearing before the Committee, and one accompanying the Committee during its visits to the mineral sands mining areas. Considerable information was provided to the Committee from the Radiological Council's and the Division's files and a submission to the Committee was prepared on behalf of the Council.

An Interim Mines Radiation Committee was established by the Government during the year as a preliminary step towards a statutory board being set up under the Mines Regulation Act. One officer of the Division is a member of the Committee and another is Secretary.

In the Division's 1982 report it was commented that a far greater proportion of the Division's resources was devoted to mineral sands mining as a result of media and parliamentary interest than was either warranted by the risk to health or would normally have been given. This distortion of the Division's priorities and the increased burden on the staff continues.

RADIATION PROTECTION OFFICE - Q.E. II MEDICAL CENTRE & U.W.A.

The Radiation Protection Office is a section of the Division providing a service for organisations using radiation at the Q.E. II Medical Centre site and the U.W.A. It is staffed by two physicists and a clerk/typist and is partly funded by the University of W.A. It enables a high standard of radiation safety to be achieved at the institutions concerned.

STAFF AND FACILITIES OF THE DIVISION

As indicated above, work associated with mineral sands continued to place the staff of the Division under considerable pressure. It has been difficult to maintain staff morale while this pressure continues and is accompanied by unfounded criticism of the Division's and the Public Health Department's handling of radiation safety. In the past, officers of the Division were seen as independent experts on radiation safety who could be expected to give impartial advice to the Government and to the public. Many issues relating to radiation have now become politicised and unfortunately there are some in the community who no longer see the Division's officers in the role of impartial advisers. It is not always appreciated that the Division's primary concern is safeguarding the public health and the environment and that the Division's officers share the same concerns for the environment as do other groups in the community.

Scientific and technical staff numbers have now remained constant for some years but the pressures not only from mining, but from the use of non-ionising radiations and the medical and industrial areas continue to grow. The Division cannot meet these new demands and maintain existing services. In the face of these difficult conditions, the staff form an effective team and I would like to thank them for the conscientious manner in which they continue to serve the Department.

The serious shortage of space reported in 1982 was alleviated temporarily when the Radiation Protection Office was relocated in one of the Sir Charles Gairdner Hospital buildings. Planning for building extensions went ahead and initial funding was made available, enabling tenders to be called late in the year. It is expected that the additional building will be available before the end of 1984.

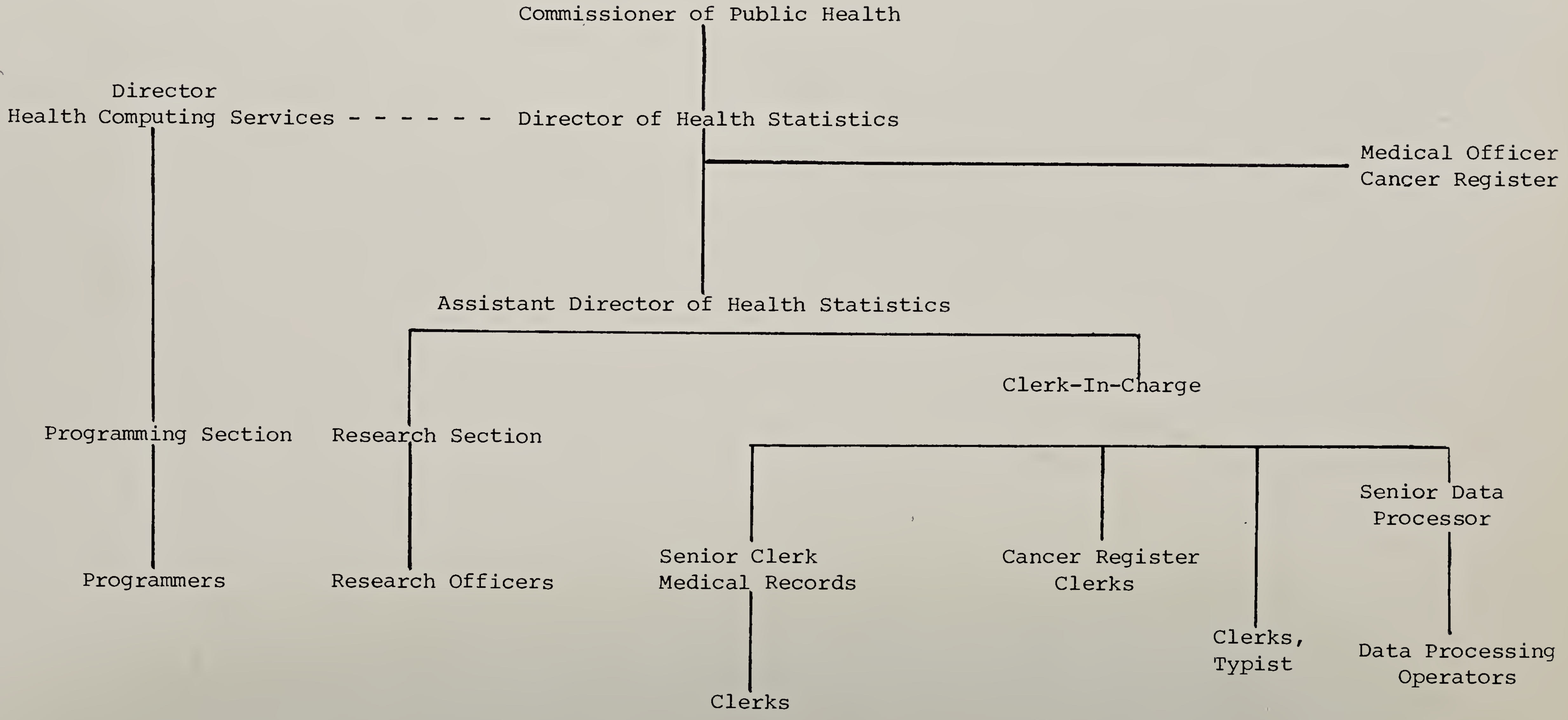
Appendix XVI

STATISTICS BRANCH

SENIOR STAFF

Acting Director : Dr. W.M. Hatton
Deputy Director : Vacant
Medical Officer, Cancer Registry : Vacant
Assistant Director : Mr. B.H. Brooks
Clerk-In-Charge: Mr. N.G.C. Treleaven
Senior Clerk, Medical Records : Miss S.A. Stevens
Supervisor, Data Processing: Mrs. E. Clydesdale

STATISTICS BRANCH - ORGANIZATION CHART


Commissioner of Public Health
Director Health Computing Services
Director of Health Statistics
Medical Officer Cancer Register
Assistant Director of Health Statistics
Clerk-In-Charge
Programming Section
Research Section
Senior Data Processor
Senior Clerk Medical Records
Cancer Register Clerks
Programmers
Research Officers
Clerks, Typist
Data Processing Operators
Clerks

STATISTICS BRANCH

HOSPITAL MORBIDITY SYSTEM

The uptake and processing of the 1983 hospital morbidity data has proceeded smoothly throughout the year and will be ready for analysis by June 1984. This represents a real improvement in uptake and processing times compared with previous years.

It is planned that 1984 data and that of subsequent years will be available by March of the following year. This will represent the optimal time of availability as hospital discharge forms for end of year discharges continue to trickle in during the early months of the next year. All coding except for teaching hospitals continues to be completed in the Branch. Royal Perth and King Edward Memorial Hospitals are to date the only hospitals using the A.T.S. system. With this system a magnetic tape of the coded discharge details is completed by medical records department of the hospital and passed to the Statistics Branch.

As use of the A.T.S. system precludes most checks for accuracy by the Statistics Branch, it is regarded as important that progress towards full consistancy of coding is achieved before the system is extended to other teaching hospitals. With this in mind, as in previous years, personnel from the medical records department of various teaching hospitals spent time in the Statistics Branch to improve standardization and co-operation.

Data entry equipment in the Statistics Branch is due for replacement in May 1984 and a comprehensive review of available options is being undertaken by Statistics Branch staff and officers from the Health Computing Services.

Visits by the Clerk in Charge and the Senior Clerk, Medical Records to hospitals to further an understanding of Branch functions and requirements, were first undertaken in 1982 when all metropolitan hospitals both private and public were visited. In 1983 these visits were extended to country areas where a total of 38 hospitals were visited.

Additionally a number of metropolitan hospitals were revisited. These visits were almost always well received and have resulted in improved quality of information on forms from those hospitals visited. Only a relatively small number of remote country hospitals now remain unvisited.

During 1983 the 1980 Hospital Morbidity Series A was printed. Efforts are being made to bring these reports, which summarise all short stay hospital discharges by patient and hospital characteristics, more up to date. Work on 1981 and 1982 series has started and they will be published during the following year to which the data appertains.

CANCER REGISTRY

Following the introduction of regulations in August 1981 making cancer a notifiable disease, 1982 was the first full year in which data was collected. During 1983 data from 1982 and the latter 5 months of 1981 were transferred to magnetic tape and tested for accuracy and accessibility. It is planned eventually to have a year's data available by the April of the following year.

In 1982 there were a total of 3,516 new cases of invasive cancer in Western Australia and 1,947 deaths attributed to cancer. Of the incident cancers there were 1,867 male and 1,649 female cases and 1,119 male and 828 female deaths.

In males the commonest cancers were in descending frequency, lung, prostate, colon, melanoma and bladder while in females breast cancer headed the list followed by melanoma, colon, lung and cervix. The leading 5 sites contributed 54% of all cancers and the leading 10 sites 73%.

Towards the end of 1983 work was begun on a position paper 'Cancer in Western Australia' for the Data Base Working Group which has the task of describing the health status of West Australians and formulating health objectives for the State.

Throughout the year the Registry has co-operated with numerous enquiries and supplied information for several research projects. The Mesothelioma Registry is run by Mrs Clarke-Hundley in co-operation with the Occupational Health Branch.

MIDWIVES DATA SYSTEM

The Midwives Data System continues to furnish valuable data for Health Service Planning and for the Congenital Malformations Register which is operated on behalf of the Public Health Department by the National Health and Medical Research Council Unit in Epidemiology.

In 1983, 22,575 single births were entered into the file and 485 multiple births recorded. Routine reports are the Annual Midwives Report, Annual Obstetric and Perinatal Tables and Annual Infant Mortality Tables.

GENERAL

A substantial part of Branch activities is associated with the analysis of data collected on a routine basis and from special surveys. The results of these analyses play an important role in health service planning in Western Australia.

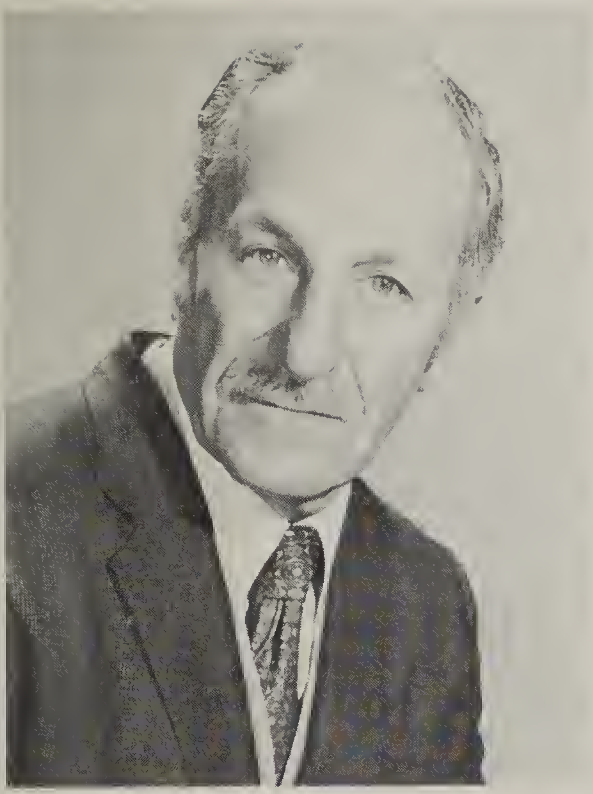
The Branch continues to participate in the development of health information systems at National, State and Departmental level. Branch officers serve on the National Committee on Health Vital Statistics and its Cancer Sub-Committee. The Branch looks forward to playing a significant role in the provision of information for planning and research in the reorganised health services.

Appendix XVII

VENEREAL DISEASE CONTROL BRANCH

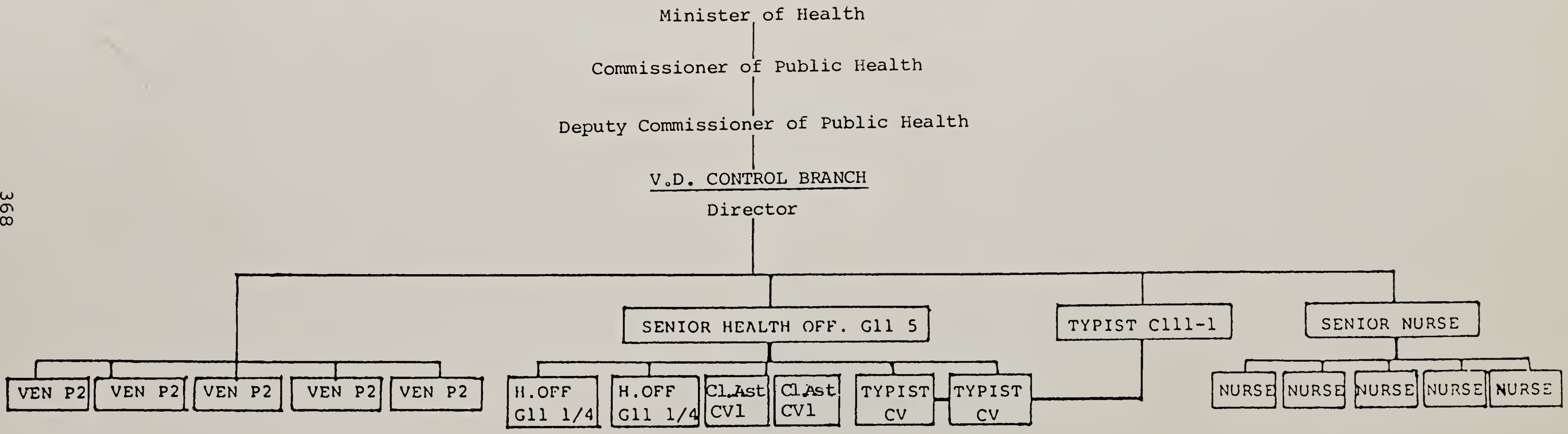
SENIOR STAFF

Director : Dr. M.M. Gollow
Senior Health Officer : Mr. G.C. Ross
Senior Nurse : Sr. C. Graham
Secretary : Mrs. J. Van Bavel



M.M. Gollow,
M.R.C.S. L.R.C.P. Dip. Ven. (Lond.)
Director

V.D. CONTROL BRANCH - ORGANIZATION CHART



VENEREAL DISEASE CONTROL BRANCH

The venereal disease control programme based on education and health promotion, as part of the total health care programme, continued during the year 1983, with extension of activities further into the rural regions, and by continuation of the education programme, in particular of medical students and residents.

The V.D. Control Branch has now completed five years of training medical students and four years of residents. This has resulted in 550 young doctors in the community with very adequate undergraduate training, 32 residents who completed three months training, and one Obstetrician/ Gynaecologist trainee fully trained for some six months.

The result of these activities gives the seeming paradox of increasing numbers of notifications of venereal diseases. However, increasing expertise in patient management resulting in emphasis in preventive Public Health medicine is now giving rise to a truer picture of the incidence and prevalence of the sexually transmissible diseases in Western Australia. Confirmation of this is of course obtained by the fact that during 1983 notifications by medical practitioners of gonorrhoea were 1729, and laboratory notifications were 1732, giving a ratio of 99.9%.

Notifications of Granuloma Inguinale increased to 32, and this was anticipated in the 1982 report; this is due to increasing diagnostic expertise, and willingness of patients to present for diagnosis.

NOTIFIED CASES OF GONORRHOEA/SYPHILIS - W.A., 1983

RATE PER 100,000 POPULATION

	Gonorrhoea	Rate	Syphilis	Rate
1983	1729	126.85	287	21.06

NOTIFIED VENEREAL DISEASES, W.A. - 1983

	Gonorrhoea	Syphilis	Granuloma	Chancroid	Total Venereal Disease
1983	1729	287	32	7	2055

The age distribution of venereal diseases for 1983 was the same as in previous years, with the maximum incidence occurring in the 20-24 age group, closely followed by the 15-19 year age group, and then the over 35 year age group. 66.86% of all notifications of venereal disease were found in the 15-29 year age group.

TOTAL VENEREAL DISEASE AGE DISTRIBUTION - 1983

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED	TOTAL
50	437	588	349	263	365	3	2055

VENEREAL DISEASE - PERCENTAGE AGE DISTRIBUTION

0-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	OVER 35 YEARS	AGE NOT STATED
2.43%	21.27%	28.61%	16.98%	12.80%	17.76%	0.15%

V.D. CLINICS

Total consultations at the three clinics of the V.D. Control Branch were 50,530 represented by:-

Moore Street Clinic	44086	(87.3%)
Queen Elizabeth II Medical Centre Clinic	4173	(8.2%)
Fremantle Hospital Clinic	2271	(4.5%)

The workload represented by this is such that staff are fully extended in maintaining this level of activity.

V.D. Notifications from the three V.D. Control Branch Clinics -

	Gonorrhoea	Syphilis	Granuloma	Chancroid
1983	872	108	5	2

Contact Tracing by the Health Officers of the V.D. Control Branch -

1983

Gonorrhoea patients interviewed	801	
Gonorrhoea patients' contacts presenting	657	(82%)
Gonorrhoea diagnosed in contacts presenting	449	(68%)
Syphilis patients interviewed	52	
Syphilis patients' contacts presenting	55	(106%)
Syphilis diagnosed in contacts presenting	40	(73%)

The V.D. Control Branch provides a telephone enquiry service for the general public and medical and nursing practitioners. In 1983 there were 10,000 enquiries from the general public and 3500 medical and nursing enquiries. These enquiries are always answered by a doctor representing a large workload.

More than 200 lectures to professional and non professional groups were delivered, in addition to 250 tutorials.

The Colposcopy Clinic with Dr. Ellis Pixley continued to provide the same service, and is currently taking part in a research project to determine the effect of the Papova virus on the female cervix. The fifth year medical students' social and preventive medicine project was based on work done on cervical cytology at the Moore Street Clinic over the past few years. The excellence of this project was determined by its winning the 1983 Public Health prize.

STATE HEALTH LABORATORY SERVICES

The work of the microbiology laboratory at 69 Moore Street, has been of the highest standard of expertise anywhere in the world. 98.5% of males with gonorrhoea were diagnosed on microscopy at first visit, and 74% of females, thus enabling immediate, effective treatment to be given. Monitoring of the mean inhibitory concentration of penicillin in Neisseria Gonorrhoeae indicates our treatment regimen to be correct and clinically we have had no treatment failures.

18 patients were diagnosed as having syphilis by dark ground microscopy on their first visit, again an outstanding feat.

Beta-lactamase (Penicillinase) producing Neisseria Gonorrhoeae. All laboratories in the State now routinely test for this. The Moore Street Clinic of the V.D. Control Branch detected 47 cases in 1983, which represents 5.7% of the total number of cases of gonorrhoea detected at the V.D. Control Branch; 20 of these were acquired locally in Western Australia (42%).

The total number of Beta-lactamase producing Neisseria Gonorrhoea in the State was 54, representing 3.1% of 1732 notifications. This excellent result is only produced by virtue of medical practitioner acceptance of contact tracing as part of patient management, and of the very intense activities of the Health Officers of the V.D. Control Branch.

This problem, which we appear to have contained at the moment, is of such magnitude in other countries that its' cost represents an enormous drain on the finances of these countries, and it will be necessary to continue to be alert to this condition and pursue rapid, vigorous contact tracing if we are not to be overwhelmed by it.

My sincere thanks to Mr. Martin Blums, Mr. Ahmed Ismail and Mrs. Ros Stark for their invaluable work.

Dr. J. Rippey, Director, and his staff at the State Health Laboratory Services have provided us with the solid back-up essential for venereal disease control. Without their co-operation and standards of expertise, venereal disease control work in Western Australia would be considerably diminished.

COMMUNITY & CHILD HEALTH SERVICES

This service is the mainstay of venereal disease control outside of the metropolitan area. It is achieved by in-service training of all staff who, at times, work under extreme difficulty. My sincere thanks to the Director and all his staff for their invaluable assistance.

REGIONAL ACTIVITIES

Venereal disease control in each of the Public Health regions of Western Australia is dealt with primarily by the Director of the region, in association with the V.D. Control Branch. The function of the V.D. Control Branch in each region is advisory, supervisory, educational and health promotion, provision of expertise, provision of support and logistical assistance. The extent of these activities varies from region to region as the local requirements are variable and continually in a state of flux, hence individual programmes must be provided for each region.

Kimberley Region

Four weeks were spent in the Kimberley by the V.D. Control Branch, resulting in a meeting of the Kimberley Region V.D. Co-ordinating Committee in each of the four shires, and provision of lectures, advice and consultative services at these times. A new proforma devised in consultation with hospital and Public Health doctors is proving of excellent value and resulting in accurate diagnosis and rapid contact tracing.

Laboratory services in the Kimberley have, as usual, provided the solid back-up required.

Towns visited during 1983 were Derby, Looma, Broome, La Grange, Balgo Mission, Halls Creek and Kununurra, as well as numerous other Reserves. At all of these, lectures were given to emphasise the importance of responsibility for personal health and promoting attitudes towards health in general, not specifically concerning the sexually transmissible diseases. General population and medical population awareness of the sexually transmissible diseases has resulted in population motivation in presenting for diagnosis and treatment, and voluntarily offering assistance with contact tracing. The effect of this is seen in the notifications of 526 cases of venereal diseases.

A survey of children in two remote areas revealed evidence of only one infection, again the effect of continuous hard work by the staff in this area.

My sincere thanks are due to Mr. John Edwards, Kimberley Regional Manager, all members of the V.D. Co-ordinating Committees, to Dr. R. Spargo, Director, Kimberley Public Health Region and his staff, and to all hospital and Aboriginal Medical Service doctors, for their co-operation and effort.

Kalgoorlie/Eastern Goldfields Region

A weeks' visit was undertaken to this area covering Kalgoorlie, Boulder, Kambalda, Menzies, Leonora, Laverton, Ravensthorpe and Esperance. The programme of venereal disease control improved, resulting in notification of 37 cases of venereal disease. This programme will continue with variations to be introduced by the Regional Director, and it is expected that more time will be allocated to this area in 1984.

My sincere thanks to Dr. Coid, Director of this Public Health Region, his staff, and all the staff of the Kalgoorlie Hospital for their assistance in helping with venereal disease control.

Pilbara Region

A weeks' visit was undertaken to the Pilbara providing lectures and consultations to doctors, and educational programmes to the lay public, commencing at Jigalong Mission and continuing to Newman, Nullagine, Marble Bar, Port Hedland, Roebourne and Karratha.

Venereal disease control in this area with its large centres of population, has resulted in total notifications of 245 cases of venereal diseases.

My sincere thanks to Dr. De Silva Rosa, Acting Director, Pilbara Public Health Region and his staff, to Dr. Sue Griffiths and all her staff at Port Hedland Regional Hospital, and all the other doctors and nurses in the Pilbara, for their interest and assistance in venereal disease control.

Central Region

An extensive education programme was undertaken over a period of two weeks on behalf of Dr. Graham Denner. Towns visited included Dongara, Geraldton, Northampton, Carnarvon, Exmouth and Onslow. A programme has been evolved to provide ongoing venereology services, and details will be finalized when this becomes an independent Public Health Region.

South West Region

Continuation of the programme in 1983, with visits to Northam, Bunbury, Albany, Denmark and Lake Grace. Bunbury is visited three times a year to lecture to each intake of State Enrolled Nurses. On each occasion a talk is given to a community group, and once a year to a professional group.

EDUCATION SERVICES BRANCH

Once again, close co-operation has resulted in the production of excellent literature, and preliminary steps have been taken towards the production of a Western Australian video. My sincere thanks to Dr. Judy Henzell, Director, and all her staff.

V.D. CO-ORDINATING COMMITTEE OF W.A.

The work of this ongoing committee under the able chairmanship of Professor J.D. Martin, provides invaluable assistance for the V.D. Control Branch.

WESTERN AUSTRALIAN VENEREOLOGY SOCIETY

Four postgraduate meetings were held in 1983. The Director of the V.D. Control Branch continues as President.

Meetings are well attended, and in particular this year a paper on Circumcision and Sexually Transmissible Diseases produced by medical students at the V.D. Control Branch and published in the Medical Journal of Australia on 17 September, 1983, provided a well attended and extremely controversial meeting. This paper was ably delivered by Dr. Michael Wren, one of the authors.

NATIONAL VENEREOLOGY COUNCIL OF AUSTRALIA

The 1983 meeting was held in Adelaide. Many controversial topics are ironed out at these meetings. Perth will be the venue in 1985.

KING EDWARD MEMORIAL HOSPITAL FOR WOMEN

The consultation clinical services continued in 1983 with the same format as previous years. There were a total of 177 consultations, and much close interchange of information between the V.D. Control Branch and the hospital.

The Royal Australian College of Obstetricians and Gynaecologists this year, for the first time, permitted a F.A.G.O. registrar to be seconded to the V.D. Control Branch for 6 months as part of the Obstetrician and Gynaecologists specialist training course. This was an eminently successful venture, which we hope will be repeated in future years.

The retirement of Dr. Stan Reid, Medical Superintendent, in November should be noted. It was due to the efforts of Dr. Reid that the V.D. Control Branch was able to undertake work at the hospital, which has resulted in a very excellent association that now exists, culminating in the appointment of the Director of the V.D. Control Branch as Visiting consultant Venereologist to the hospital.

Sincere thanks of the V.D. Control Branch go to Dr. Reid for all his efforts in the past, as well as best wishes for the future.

FREMANTLE HOSPITAL, QUEEN ELIZABETH II MEDICAL CENTRE, AND ROYAL PERTH HOSPITAL

The excellent co-operation that has existed over the years between the V.D. Control Branch, and the doctors and administration within these hospitals has continued. My sincere thanks are offered to Dr. Peter

Smith, Fremantle Hospital, Dr. Ron Kilgour, Queen Elizabeth II Medical Centre, and Dr. Rex Joiner, Royal Perth Hospital, and all the staff of these hospitals for their invaluable help and co-operation.

UNIVERSITY OF WESTERN AUSTRALIA

The Director of the V.D. Control Branch was invited to deliver an Overview on the biological consequences of sexual transmission of viruses at the 53rd ANZAAS Conference held in Perth in May, 1983.

It is under this heading that it would be appropriate to note the retirement of Professor Neville Stanley, Professor of Microbiology at the University of Western Australia. It was with his help, encouragement, and not inconsiderable influence, that the V.D. Control Branch was able to provide the excellent medical undergraduate teaching programme which is one of the best in the world. His active encouragement in inviting us to lecture to microbiology students and to participate in research efforts, has been one of the very important factors in developing the reputation of the V.D. Control Branch of the Public Health Department of W.A. We wish him well in his retirement, which doubtless will be an extremely busy one.

CONCLUSION

The V.D. Control Branch has now initiated an ongoing programme covering the whole of Western Australia. There are very few places in the world, if any, considering the size and demography of this State, that have achieved this object. It is only by the co-operative efforts of the whole team of workers at the V.D. Control Branch that this has been achieved with such an astounding degree of success. Further improvement will be gradual as the economics of the time dictate.

I am sincerely grateful to every staff member of the V.D. Control Branch for their assistance during 1983.

My sincere thanks are expressed to Dr. J.C. McNulty, Commissioner of Public Health, Dr. L.J. Holman AO, Deputy Commissioner of Public Health, and Dr. C.F. Quadros, Assistant Commissioner of Public Health, for their advice, encouragement, and most important of all, back-up in our work.

PUBLICATIONS

1. Protocol for the Diagnosis Treatment and Management of Syphilis.
2. The Biological Consequences of sexual transmission of Viruses - an Overview. 53rd ANZAAS Conference, Perth, W.A. May, 1983.
3. Circumcision and Sexually Transmissible Diseases - Med. J. Aust. 1983: 2:288-290.
4. Handbook of Sexually Transmissible Diseases, 2nd Ed. NH & MRC (Contributor).

Appendix XVIII

ANAESTHETIC MORTALITY COMMITTEE REPORT

Chairman, Dr. N.J. Davis

Under the terms of the Act, 65 cases were reported to the Commissioner between September 1982 and January 1984.

Between September 1982 and June 1983, 34 cases were analysed by the Investigator and between July 1983 and January 1984, 31 cases were investigated. Many of these deaths were unavoidable and were related to major trauma, emergency surgery in the elderly, or surgical complications during major operations. At the last meeting of the Anaesthetic Mortality Committee on 17th February, 1984, six cases were discussed in detail, and letters subsequently written to the reporting doctors.

Benefits resulting from the work of the Anaesthetic Mortality Committee include:-

1. improved intraoperative record keeping;

2. improved postoperative care with the recognition of need for adequate postoperative recovery facilities;

3. identification of areas where continued education is necessary, and organisation of educational meetings through the Australian Society of Anaesthetists and the Faculty of Anaesthetists.

Appendix XIX

CONGENITAL MALFORMATIONS REGISTER

MEDICAL OFFICERS

Dr. F.S. Stanley
Dr. C. Bower
Dr. V.P. Waddell

NURSE

Sr. B. Chester

CLERK

Ms. R. Johnston

CONGENITAL MALFORMATIONS REGISTER

The Western Australian Congenital Malformations Register is now in its fifth year of operation. The register was established to collect data on congenital malformations throughout Western Australia, occurring in children born on or after January 1, 1980.

Congenital malformations are defined by the W.A. Register as any defects probably of prenatal origin. Thus, structural, biochemical, chromosomal and genetic abnormalities are included. Many minor defects eg. tongue tie and umbilical hernia are excluded, but included are any that require treatment or are disfiguring.

Information is gathered from various existing data sets and from voluntary notifications from hospitals, child health nurses, special treatment and investigation centres and private practitioners. Demographic, diagnostic and notification information is coded and computerised, without name. This report summarises the data received to date for children born in 1980, 1981 and 1982 with some preliminary figures for 1983. These data are all necessarily incomplete as malformations in children born in these years continue to be diagnosed and notified to the register. Also, some categories of malformations have been excluded (eg. ingenial hernia) and so figures may be different from those in previous annual reports.

Table I shows the total number of children with malformations notified to the register so far.

TABLE I

TOTAL NUMBER BIRTHS WITH MALFORMATIONS

	Total Births in W.A.	Births with Congenital Malformation	
		Number	Percent
1980	20,788	869	4.18
1981	22,065	730	3.31
1982	22,330	724	3.24
1983	22,856	714	3.12

The distribution of all malformations with respect to plurality (single or multiple birth) and race (Aboriginal or non-Aboriginal) mirrors that for total births in the State. However, there is a consistent and significant excess of males with malformations (in 1982, 60.5% males and 38.5% females). This male excess has been observed in studies of birth defects throughout the world.

Table II gives the distribution of malformations by mother's place of residence. Regional variations are obvious in this table : no single major group of defects accounted for these variations

TABLE II

BIRTHS WITH MALFORMATIONS BY MOTHER'S PLACE OF RESIDENCE

	Total Number of Births	Births with Congenital Malformation	
		Number	Percent
Perth	14,676	493	3.36
South West	1,853	45	2.43
Lower Great Southern	802	27	3.37
Upper Great Southern	463	24	5.18
Midlands	984	30	3.05
South East	972	35	3.60
Central	1,056	24	2.27
Pilbara	1,033	23	2.23
Kimberley	477	19	3.98
Other/Unknown	14	4	-
TOTAL	22,330	724	

The malformations are divided into major and minor categories based on a classification from the Centers for Disease Control, Atlanta, U.S.A. Table III shows the distribution of defects in the children notified so far for 1982.

TABLE III

DIAGNOSES BY GROUPED CATEGORIES, 1982

	Number	Percent
Single minor	72	9.9
Multiple minor	5	0.7
Single major ± minor	524	72.4
Multiple major ± minor	123	17.0
TOTAL	724	100.0

The individual malformations are coded according to the 5-digit British Paediatric Association expanded ICD-9 system. Defects in the musculoskeletal system are the most common, followed by the uro-genital and gastro-intestinal systems and the heart. The most common individual defect is congenital dislocation of the hip : the rate was 4.3 per 1000 births in 1982. Rates for other individual defects in Western Australia in 1982 are 1.7/1000 for neural tube defects, 1.1/1000 for Down's Syndrome and 1.8/1000 for cleft lip and palate. Ventricular septal defect is the most common heart defect : the rate was 2.9/1000 in 1982.

More detailed information is available on application to the register.

A number of studies are being undertaken in Western Australia in relation to congenital malformations. The register staff are performing a case: control study of neural tube defects, testing the folate deficiency hypothesis and looking at water quality and zinc levels. Neil Burman, a dentist, is undertaking a descriptive case:control study of cleft lip and palate. In 1984 the Community and Child Health Services and the register staff will collaborate on an evaluation of congenital dislocation of the hip screening.

The most recent paper produced by the register staff is a statistical survey of infants born to diabetic and epileptic mothers. These mothers have been reported elsewhere to be more likely to have a malformed infant. This propensity was confirmed in the Western Australian figures for diabetic mothers, but not for epileptic mothers (Stanley et al, unpublished). The study of high-risk mothers may help elucidate the pathogenic mechanisms of malformations.

There is much concern amongst rural dwellers about any possible teratogenic effect of the herbicides and pesticides used in spraying. This is a difficult subject to study at present because of the lack of adequate exposure data of the people to the chemicals. It is hoped that this work will be done in the future.

PUBLICATIONS

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Bower, C. - The Western Australian Congenital Malformations Register. In "Beyond Normalisation - Philosophy, Theory and Practices in Services for the Intellectually Handicapped in Australia". Vol 1., University of Western Australia Press. 1981.

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Stanley, F.J., deKlerk, N., Margetts, B., Bower, C. - Assessment of Folate Status. Letter. Lancet 2:1100, 1982.

English, D., Bower C. Alcohol Consumption, Pregnancy and Low Birthweight. Letter. Lancet 1:1111, 1983

Bower, C., Stanley, F.J., The Western Australian Congenital Malformations Register. Med. J. Aust. 2:189, 1983.

Stanley, F.J., Johnston, R., Priscott, P., Brookes, B. and Bower, C.I. - Congenital Malformations in the infants of diabetic and epileptic mothers. (Unpublished)

Appendix XX

MATERNAL MORTALITY COMMITTEE REPORT

Chairman, Professor J.D. Martin

During 1983 there were 22,972 live births and one maternal death giving a maternal mortality rate of 0.044 per 1,000 live births.

CASES CONSIDERED BY THE COMMITTEE

Case 1.

A 29 year old caucasian woman died of postpartum haemorrhage 22 hours after the birth of her fourth child. She was a Jehovah's Witness and refused blood transfusion. Death was considered to have been avoidable.

Additional Case 1978

A 26 year old diabetic woman with obesity developed acute bacterial endocarditis subsequent to the delivery of her second child. She was admitted to hospital seven weeks after delivery with aortic regurgitation and incipient left ventricular failure. In spite of intensive care including aortic valve replacement and other cardiac operations she died four months later. Death was considered to be unavoidable.

Appendix XXI

PERINATAL AND INFANT MORTALITY COMMITTEE REPORT

Dr. V.P. Waddell

The Perinatal and Infant Mortality Committee of Western Australia is a statutory body which conducts confidential enquiries into selected perinatal and infant deaths each year. The objective of the Committee is to increase the quality of medical care of women in pregnancy and labour and of their babies up to the age of one year. This objective is to be achieved by educational efforts directed towards individuals and groups. The Committee produces an Annual Report which includes Educational Papers written by experts; these papers are pertinent to the causes of deaths occurring in that year. Copies of the Annual Reports are available from Dr. V. Waddell, 60 Beaufort Street, Perth, 6000.

1982

There were 22,389 babies born in Western Australia in 1982. Five percent of these births were to Aboriginal mothers. There is a trend for country mothers to come to the metropolitan area for delivery; almost 75% of births occurred in Perth in 1982.

These were 197 stillbirths including 43 of birthweight less than 500g. The stillbirth rate was 6.9/1000. There were 127 neonatal deaths including seven of birthweight less than 500g. The perinatal mortality rate was 12.2/1000 overall and the Aboriginal rate was 29.2/1000. Eighty post-neonatal infant deaths occurred. Thus, the overall infant mortality rate was 8.9/1000 and the Aboriginal infant mortality rate was 25.2/1000. As in previous years the Western Australian perinatal and infant mortality figures compared favourably with the best in the world.

A confidential register is kept of all stillbirths and infant deaths occurring in Western Australia each year. The 1982 register has 404 entries. Cases are made known to the office by one of two methods:

(1) direct notification by the attending medical practitioner to the Commissioner of Public Health;

(2) examination of the records at the Registrar General's office.

In previous years it had been found to be impractical to investigate all perinatal and infant deaths. Many of these deaths are unavoidable because of extreme immaturity or congenital malformation incompatible with life. Cot deaths are being investigated already by Dr. John Hilton, State Health Laboratory Services, as an ongoing service and as part of a research project. Therefore, with the approval of the Commissioner of Public Health, criteria are applied to select cases for investigation. The cases selected in 1982 were:

(1) All singleton stillbirths weighing 2000g or more at birth who were not lethally malformed.

(2) All twins and other multiple stillbirths weighing 1000g or more at birth who were not lethally malformed.

(3) All Aboriginal infant deaths who were not lethally malformed nor cot deaths.

(4) All singleton neonatal deaths weighing 2000g or more at birth and multiples weighing 1000g or more who were not lethally malformed nor cot deaths.

(5) All infant deaths from meningitis.

There were 92 babies in these categories in 1982. Sixty-one of the 92 were stillbirths and were investigated by the obstetric investigator; 31 were infant deaths.

An anonymous report on each case is prepared for the Committee. The Committee meets every 2-3 months and case reports are presented to it for discussion. It should be noted that whilst the case reports are anonymous the Committee is made aware of the medical facilities and expertise that was available eg whether a case was supervised by a general practitioner in a country district hospital, by a specialist in a peripheral metropolitan hospital etc and these circumstances are taken into consideration. The Committee determines whether, in its opinion, each stillbirth/infant death was 'unavoidable' or 'potentially avoidable'. A death is considered 'potentially 'potentially avoidable' if the Committee decides that the way in which it was managed represents a departure from acceptable clinical practice. This does not necessarily mean that the death could have been avoided. The Committee may add to its determination, any constructive comments it deems may help prevent recurrence. The Chairman then conveys the result of the Committee's deliberations in writing to the medical practitioner in attendance at the time of the stillbirth/infant death.

It is required by the Health Act that the Committee's conclusions be sent only to the doctor responsible at the time of the stillbirth/infant death. This part of the Health Act has been recommended for amendment because at times it is desirable to convey the Committee's deliberations to other medical practitioner(s). For example, one doctor may care for a woman in pregnancy and then, when fetal death occurs in utero, refer her to another doctor for delivery. In such a case the Committee should be able to communicate directly to the first doctor if it wishes.

Committee Findings for 1982

The timing of the 404 perinatal and infant deaths in 1982 is shown in Table I. Of the 404 deaths, 92 (22.8%) met the criteria for investigation by the Committee. Three hundred and twelve (77.2%) deaths were not investigated and these included 84 due to congenital malformation incompatible with life, 169 due to the birthweight being below 2000g and 41 due to the sudden infant death syndrome.

TABLE I

Timing of Death	No. of Deaths	No. Investigated	No. Potentially Avoidable	Percent Potentially Avoidable
Antepartum Stillbirth	121	36	11	9.1%
Intrapartum Stillbirth	54	17	8	14.8%
Unknown Antepartum/ Intrapartum Stillbirth	22	8	0	0%
Neonatal Death	127	22	6	4.7%
Unknown Stillbirth/ Neonatal Death	0	0	0	0%
Post-neonatal Infant Death	80	9	3	3.8%
TOTALS	404	92	28	6.9%

The results of the investigations are summarised in Table I. Of the 92 deaths investigated, 28 were found to be potentially avoidable and 64 unavoidable. The 28 potentially avoidable deaths represent 6.9% of the total perinatal and infant mortality. As last year, the intrapartum stillbirths made proportionately the largest contribution to the potentially avoidable figure.

The 28 potentially avoidable deaths were due to:-

1. Pregnancy-induced hypertension; post-term (antepartum stillbirth at 41 weeks gestation).

2. Pregnancy-induced hypertension; post-term (antepartum stillbirth at 41 weeks gestation).

3. Pregnancy-induced hypertension (antepartum stillbirth at 43 weeks estimated gestation).

4. Pregnancy-induced hypertension (antepartum stillbirth at 40 weeks gestation).

5. Recurrent proteinuria (antepartum stillbirth at 40 weeks gestation).

6. Pregnancy-induced hypertension; excessive weight gain; decreased fetal movements (antepartum stillbirth at 37 weeks gestation).

7. Essential hypertension and pregnancy-induced hypertension (antepartum stillbirth at 38 weeks gestation).

8. Placenta praevia early in pregnancy; artificial rupture of the membranes not performed in theatre (antepartum stillbirth at 38 weeks gestation).

9. Mother would not comply with medical management for maturity onset diabetes and essential hypertension (antepartum stillbirth at 36 weeks estimated gestation).

10. Proteinuria; post-term (antepartum stillbirth at 41 weeks gestation).

11. Maturity-onset diabetes; hypertension; post-term (antepartum stillbirth at 42 weeks gestation).

12. Post-term; cephalo-pelvic disproportion and fetal distress in labour (intrapartum stillbirth at 42 weeks gestation).

13. Pregnancy-induced hypertension (intrapartum stillbirth at 38 weeks gestation).

14. Essential hypertension; post-term (intrapartum stillbirth at 41 weeks gestation).

15. Pregnancy-induced hypertension; post-term (intrapartum stillbirth at 40+ weeks gestation).

16. Cord prolapse in labour; caesarean section not performed (intrapartum stillbirth at 38 weeks gestation).

17. Abnormal presentation; high presenting part; bicornuate uterus; delay in transfer from District Hospital (intrapartum stillbirth at 37 weeks gestation).

18. Pregnancy-induced hypertension (intrapartum stillbirth at 39 weeks gestation).

19. Recurrent placental abruption (intrapartum stillbirth at 39 weeks gestation).

20. Breech delivery; birth asphyxia; delay in transfer to neonatal intensive care unit (7th day neonatal death after delivery at 40 weeks gestation).

21. Pregnancy-induced hypertension; post-term (1st day neonatal death after delivery at 42 weeks gestation).

22. Pregnancy-induced hypertension and recurrent trace proteinuria (1st day neonatal death after delivery at 39 weeks gestation).

23. Fetus at risk; labour induced; labour not monitored (3rd day neonatal death after delivery at 37 weeks gestation).

24. Group B Streptococcal infection (1st day neonatal death after 38 weeks gestation).

25. Shirodkar suture removed and premature labour induced in a hospital without neonatal special care facilities (1st day neonatal death after 36 weeks gestation).

26. Haemophilus influenzae meningitis (infant death at 8 months).

27. Gastroenteritis (infant death at 6 months).

28. Gastroenteritis; bronchiolitis; bronchopneumonia (infant death at 6 months).

As a result of the case investigations the following Educational Papers were written for inclusion in the Third Annual Report:-

(i) The Use of Ultrasound in Pregnancy.
(ii) Maternal Obesity and the Large Baby.
(iii) What is Fetal Distress?
(iv) The Management of Fetal Death in Utero.

1983

To date there have been 355 stillbirths or infant deaths occurring in 1983 made known to the Committee. Of these, 74 meet the criteria for investigation.

Appendix XXII

INCIDENCE AND MORTALITY OF NOTIFIABLE DISEASES

Diseases Notifiable	1980		1981		1982		1983	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
Amoebiasis	6	-	4	-	-	-	3	N/A
Ancylostomiasis	-	-	-	-	-	-	1	N/A
Anthrax	-	-	-	-	-	-	-	N/A
Bacillary Dysentery(Shigellosis)	87	-	74	1	87	-	89	N/A
Bilharziasis	-	-	-	-	1	1	-	N/A
Brucellosis	3	-	-	-	-	-	1	N/A
Cholera	-	-	-	-	-	-	-	N/A
Diphtheria	-	-	-	-	-	-	-	N/A
Encephalitis Lethargic	-	-	1	-	-	-	-	N/A
Filariasis	-	-	-	-	-	-	-	N/A
Homologous Serum Jaundice	16	-	17	-	20	-	16	N/A
Hydatid	-	-	-	-	-	-	-	N/A
Infective Hepatitis	227	1	143	4	134	4	156	N/A
Leprosy	9	-	8	-	14	-	17	N/A
Leptospirosis	9	-	11	-	5	-	9	N/A
Malaria	50cos	-	30cos	-	20	1	34	N/A
Meningococcal Infection	-	-	1	-	1	1	2	N/A
Ornithosis	-	-	-	-	-	-	-	N/A
Paratyphoid	-	-	3	-	-	-	-	N/A
Plague	-	-	-	-	-	-	-	N/A
Poliomyelitis	-	-	-	-	-	-	-	N/A
Puerperal Fever	-	-	-	-	-	-	-	N/A
Relapsing Fever	-	-	-	-	-	-	-	N/A
Salmonella Infection(A)	219	1	16	-	97	-	93	N/A
Scarlet Fever	3	-	3	-	2	-	6	N/A
Small Pox	-	-	-	-	-	-	-	N/A
Tetanus	-	-	-	-	-	-	-	N/A
Tuberculosis	167	7	160	-	136	-	152	N/A
Typhus Fever	-	-	-	-	1	-	-	N/A
Typhoid Fever	4	-	-	-	2	-	-	N/A
Yellow Fever	-	-	-	-	-	-	-	N/A

cos - Contracted out of State
(A) - Other Salmonella Infection
N/A - Not Available.

Appendix XXIII

PUBLIC HEALTH DEPARTMENT

Financial Summary For Year Ended December 31st, 1983

1.	**EXPENDITURE**			$ 63,488,861
	Less Laboratories Rebates			
	Salaries	$ 126,237		
	Contingencies	$ 311,201	-	$ 437,438
	Net Expenditure			$ 63,051,423
2.	**REVENUE**			$ 15,455,084

PUBLIC HEALTH DEPARTMENT

Expenditure For Year Ended December 31st, 1983

1.	SALARIES		
	Administration including other Health Services		6,529,843
2.	ADMINISTRATION EXPENSES		947,204
3.	PAYROLL TAX		2,133,950
4.	GOVERNMENT PRINTER		23,208
5.	CHILD HEALTH SERVICES		
	Salaries	6,040,683	
	Generally	617,869	6,658,552
6.	DENTAL HEALTH SERVICES		
	Salaries	8,419,543	
	Generally	1,131,618	
	Training Centres	168,847	
	Therapy Centres	821,098	
	Dental Clinics	218,989	10,760,095
7.	SENIOR CITIZENS SERVICES		
	Salaries	48,260	
	Generally	853,568	901,828
8.	COMMUNITY HEALTH SERVICES		
	Salaries	5,306,424	
	Generally	1,842,519	7,148,943
9.	COMMUNITY HEALTH PROGRAMME		
	Salaries	4,674,498	
	Generally	2,596,003	7,270,501
10.	LABORATORIES		
	Salaries	9,523,136	
	Generally	5,102,627	14,625,763

11. OTHER HEALTH SERVICES

Health Services Centre	36,006		
Pharmaceutical Services	59,740		
Statistics	255,221		
Health Surveyors Inc. Other Inspection (KY)	208,318		
Pest Control	19,078		
Occupational Health	115,783		
Clean Air	131,417		
Noise Abatement	22,034		
Physics Division	184,760		
V.D. Control	105,915		
Health Services Planning & Research	144,164		
Poisons	21,145		
Guthrie Testing P.M.H.	19,420		
Food & Nutrition	4,447		
National Diseases Control	51,451		
Hypothrodism	24,935		
Family Planning	56,500		
Epidemiology	155,169		
Inspection Services - Professional	3,064		1,618,567

12. T.B. CONTROL

Salaries	810,491		
Generally	289,313		1,099,804

13. MEAT INSPECTION

Generally			485,810

14. EDUCATION SERVICES

Health Education

Salaries	388,306		
Generally	83,300	471,606	

Audio Visual

Salaries	311,967		
Generally	75,165	387,132	

Library Services

Salaries	276,273		
Generally	141,414	417,687	

Staff Development Unit
SDA Commonwealth Funding

Salaries	145,894		
Generally	130,648	276,542	

	Staff Development Unit SD State Funding			
	Salaries	291,617		
	Generally	35,765	327,382	
	Drug Education			
	Salaries	126,715		
	Generally	24,211	150,926	
	Education Services Branch			
	Generally	37,520	(TOTAL 14)	2,068,795
15.	DERBY LEPROSARIUM			
	Salaries	291,426		
	Generally	149,872		441,298
16.	ANTI-SMOKING PROGRAM			
	Generally			774,700
	GRAND TOTAL			$ 63,488,861

PUBLIC HEALTH DEPARTMENT

REVENUE FOR YEAR ENDED DECEMBER 31ST, 1983

LICENCES		
Anatomy	539	
Fumigation	1,320	
Poisons Act	48,780	
Radioactive Substances Act	22,692	
Optical Dispensers	45	
Private Hospitals	4,550	
Clean Air Act	34,970	112,896
FEES		
Fish Inspection	17,273	
Building Inspection	6,818	
Perth Medical Officers	723	
Pest Control Collections	13,655	
Pesticide Registration	53,326	
Septic Tank Plans	47,503	139,298
MISCELLANEOUS		
Other	118,409	
Busselton Health Centre	10,887	
Mandurah Health Centre	8,132	
Karratha Health Centre	19,747	
South Hedland Health Centre	35,088	
Geraldton Health Centre	39,929	
Kwinana Health Centre	2,617	
Claremont Health Centre	160	
Lockridge Health Centre	9,150	
Dalwallinu Health Centre	340	
X-Ray Examinations	3,446	
Recoup Inspection Services	1,500	
Amalgam Waste	7,151	
Sale of Publications - Health Education	205	
Audio Visual Charges	61,206	
Calibration of Instruments	1,648	
Subsidised Insurance Scheme	21,886	
Derby Leprosarium	96,332	
Anti-Smoking Program	10,348	448,181
COMMONWEALTH GRANT		8,915,774
LABORATORIES (Fees and Services)		5,647,831
DENTAL (Fees)		191,104
GRAND TOTAL		$ 15,455,084

37011/11/84—700—O WILLIAM C. BROWN, Government Printer, Western Australia